DISSERTATION

ON

A STUDY TO EVALUATE THE EFFECTIVENESS OF AMLA JUICE WITH HONEY IN CONTROL OF BLOOD PRESSUR AMONG HYPERTENSIVE CLIENTS IN SELECTED URBAN AREA AT CHENNAI

MSc (NURSING) DEGREE EXAMINATION
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In partial fulfillment of requirements for the degree of

MASTER OF SCIENCE IN NURSING

APRIL 2016

CERTIFICATE

This is to certify that this dissertation titled **"A study to evaluate the effectiveness of amla juice with honey in control of blood pressure among hypertensive clients in selected urban area at Chennai"**is a bonafide work done by **Mrs.A.Ramya , II YearM.Sc (N)**student, College of Nursing, Madras Medical College, Chennai – 600003 submitted to **The Tamilnadu Dr.M.G.R Medical University, Chennai-32,** in Partial fulfillment of the requirements for the award of Degree of **Master of Science in Nursing, Branch - IV, Community Health Nursing** under our guidance and supervision during the academic period from **2014 – 2016**.

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"Nothing is impossible, the word itself says 'I' m possible"
–Audrey Hepburn

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ABSTRACT

TITLE: A study to evaluate the effectiveness of amla juice with honey in control of blood pressure among hypertensive clients in selected urban area at Chennai.

The prevalence of hypertension is rapidly increasing all over the world at an alarming rate over the recent years. Hypertension affects the majority of population worldwide.

Need for study: Amla is well known for its nutritional qualities. It is rich in polyphenols, minerals and is regarded as one of the richest source of vitamin C(200-900 mg per 100 g) of edible portion and also rich in gallic acid, tannins, Flavonoids, pectin, chromium, Zinc and copper etc. The fruit also contains higher concentration of most minerals and amino acids than apples.

Objective: The aim of this study was to evaluate the effect of amla juice with honey in control of blood pressure among hypertensive clients.

Key words: amla juice, polyphenols, Systolic and diastolic blood pressure.

Methodology:

Research approach: An experimental study with quantitative approach

Research design: pre test – post test design was used

Sample setting: The study was conducted in the selected streets of Choolai, belongs to Chennai Corporation (North Zone) as urban health post.

Sample size: 60 hypertensive clients both male and female (30 in experimental and 30 in control group)

Sampling technique: simple random sampling technique using lottery method

Data collection procedure: In this study, 150 ml of amla juice with honey was given to the hypertensive clients in experimental group after breakfast daily for 14 days.

Tools: The tool used for the study includes questionnaire and monitor blood pressure using sphygmomanometer and stethoscope.

Data analysis: The obtained data were analyzed by using descriptive statistics like, mean, standard deviation for demographic variable and inferential statistics like Pearson chi-square test, paired t-test, independent t-test for clinical variable.

Study results: The amla juice was found to be effective in experimental group by considering SBP level, 6.8% of blood pressure was reduced than the pretest and by considering DBP level, 11.9% of blood pressure was reduced than the pretest. And in control group 0.89% reduction of systolic blood pressure and 2.60% reduction of diastolic blood pressure than the pretest.

Discussion: In experimental group, the mean SBP difference with 95% CI is 10.17 and DBP difference is 10.67. In control group, the mean SBP difference is 1.33 and DBP difference is 2.34. It concludes that there was a statistically significant difference in the blood pressure level among hypertensive clients between experimental and control group. In this study, there was a significant association between the mean difference in blood pressure level and selected demographic variables as age, members in a family, education status, life style factors like duration of exercise, exercise per week, duration of watching T.V, duration of tea intake, adherence to dietary modification and medication taken for hypertension. Hence the formulated hypotheses were proved.

Conclusion: The study conclude that, the systolic blood pressure difference in experimental group is 10.17 and in control group is 1.33 then the**'t' value is 6.68** and which is statistically significant with the **P value 0.001**. Then the diastolic blood pressure difference in experimental group is 10.67 and in the control group is 2.33 which is statistically significant with the**'t' value 6.10** and **P value 0.001**. So, amla juice is more effective for experimental group in the reduction of systolic and diastolic blood pressure.

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LIST OF ABBREVIATIONS

S.NO	ABBREVIATIONS	EXPANSION
1	DF	Degrees of Freedom
2	SD	Standard Deviation
3	CI	Confidence Interval
4	P	Significance
5	Fig	Figure
6	H	Hypothesis
7	M.Sc (N)	Master of Science in Nursing
8	$\chi 2$	Chi square test
9	No	Number
10	SBP	Systolic Blood Pressure
11	DBP	Diastolic Blood Pressure
12	CIPP	Context Input Process and Product
13	WHO	World Health Organization
14	DASH	Dietary Approach to Stop Hypertension
15	HTN	Hypertension
16	GBD	Global Burden of Disease
17	CHD	Coronary Heart Disease
18	EO	Emblica Officinalis
19	HBP	High Blood Pressure

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CHAPTER – I

INTRODUCTION

CHAPTER-I

INTRODUCTION

"Let food be thy medicine and medicine be thy food"

- **Hippocrates.**

Today, the uncontrolled way of life is the root cause of all sorts of miseries and many ill-fated diseases to mankind. Hypertension is important risk factors for cardiovascular disease. The prevalence of hypertension is 1.5-2.0 times more in those with diabetes, whereas almost one-third of the patients with hypertension develop diabetes later. This coexistence presents an increased risk and can accelerate vascular complications. Diabetes and hypertension are manageable health conditions and can be controlled by medicinal interventions, exercises, and balanced diet.

Hypertension or high blood pressure still remains an uncontrolled problem in India, mainly because the condition develops silently and remains undetected for a long time. According to the World Health Organization (WHO), one in every three individuals above the age of 18 years has high blood pressure. There are five types of hypertension which includes Primary hypertension, Secondary hypertension, malignant hypertension, resistant hypertension, isolated systolic hypertension.

There are several known factors that increase the risk of hypertension. These include – age (above 40 years), family history of blood pressure, stress, high salt intake, smoking, heavy alcohol intake, chronic diseases (heart, kidney diseases ect.,). Hypertension mainly develops as you grow older. The primary cause of high blood pressure remains unknown in almost 90% of the cases. But there are several secondary causes of hypertension such as: Kidney, Diabetes, Blocking of arteries,

irrational use of medicines like pain killers, supplements, Thyroid problems, Heavy alcohol intake, Sleep disorders.

High blood pressure is a **silent killer** and does not have any symptoms as such Headache, Breathlessness, Nosebleed, Vision problem, increased heart rate.

The only way to know whether you have high blood pressure is to get it measured. The physician will measure your blood pressure with an instrument called sphygmomanometer. Recently, new guidelines released by the U.S revised the normal range of blood pressure to 150/90 for people above 60 years of age.

Hypertension can be treated with medicines and lifestyle changes. **Medication:** Drugs used for treating hypertension are called anti-hypertensive drugs. Anti-hypertensive drugs are needed lifelong because hypertension can only be controlled and not cured.

Lifestyle changes: lifestyle changes should be tried first before taking medication in case of mild hypertension. These changes also apply if you want to prevent hypertension. Lifestyle changes include -Regular exercise, maintaining healthy weight, Reducing salt intake, Lowering fat intake, Managing stress .

Dietary changes: The DASH (Dietary Approaches to Stop Hypertension) diet includes eating foods with potential antihypertensive activity like fresh fruits and vegetables (amla juice, beetroot garlic and radish), whole grains, milk, etc and lowering the intake of salt and processed foods.

Exercise: Regular physical activity of 30 to 60 minutes lowers your blood pressure level by 4 – 9 mm Hg.

Natural herbs: The commonly used natural remedies with antihypertensive property include garlic, custard apple, celery, ajwain, carrot, flaxseeds (alsi), tomato, drumsticks, basil (tulsi), pomegranate, sesame, cocoa bean, wheat bran, black plum and ginger.

Stress management: Stress is one of the key factors responsible for hypertension. The various relaxation techniques used to relieve stress and lower high blood pressure are controlled breathing, reiki, acupuncture and meditation.

Yoga: Sitting and supine positions that place the spine in a horizontal position, and exert less strain on the heart can be therapeutic. Some recommended yoga *asanas* are sukhasana, bhramari pranayama, janusirsasana, paschimotanasana, shavasana, setubandhasana, pawanmuktasana and shishuasana.

Probiotics: Probiotics, which contain good bacteria, were known to promote a healthy digestive system in addition to improving immunity. But research studies have shown that these 'helpful bacteria' exert antihypertensive potential by improving lipid profile, function of the enzyme renin (responsible for normal blood pressure) and insulin resistance in the body.

Amla is the most widely used herb in the ayurveda, it helps in balancing three Doshas, Vayu, Pitta and Kapha and helps in digestive problems, heart problems, improves defense mechanism, improves eye sight, adds a natural glow to hair and body and is a store house of Vitamin C.

It's antibacterial, carminative, hypoglycemic, stomachic, hypotensive and astringent action prevents infection, helps in healing of ulcers, treatment of jaundice, dyspepsia and cough and controls hyperacidity. **Alma is a good Cardio Tonic** and its mild stimulant action on heart help to control blood pressure.

Gooseberry remains a popular Tonic consumed across the Globe. 81.2% of gooseberry fruit is water, thus it is a very good source of skin moisturizing. It is the richest natural source of Vitamin C. 100 gm. of Amla contains about 700 mg. of vitamin C, which is thirty times the amount found in oranges. It also contains calcium, iron, protein, tannic acids, sugar, phosphorus, carbohydrates etc.

1.1 Need for the study:

Today, life has become so stressful that there is hardly any man who is not suffering any kind of disease. Long working hours, unhealthy food habit, insufficient rest and sleep, tension and stress, all leads to different health problems.High blood pressure (BP) is ranked as the third most important risk factor for attributable burden of disease in south Asia (2010) .Hypertension (HTN) exerts a substantial public health burden on cardiovascular health status and healthcare systems in India.

A cardiovascular disease has been predicted that by the year 2020, there will be an increase by almost 75% in the global cardiovascular disease burden. Almost all of this increase will occur in developing countries.

The situation in India is more alarming. It has been predicted that by 2020, there would be a 111% increase in cardiovascular deaths in India. This increase is much more than 77% for China, 106% for other Asian countries and 15% for economically developed countries.

In an analysis of worldwide data for the **global burden of HTN**, 20.6% of Indian men and 20.9% of Indian women were suffering from HTN in 2005. The rates for HTN in percentage are projected to go up to 22.9 and 23.6 for Indian men and women, respectively by 2025. Recent studies from India have shown the prevalence of HTN to be 25% in urban and 10% in rural people in India. According to the **WHO** 2008 estimates, the prevalence of raised BP in Indians was 32.5% (33.2% in men and 31.7% in women). However, only about 25.6% of treated patients had their BP under control, in a multicenter study from India on awareness, treatment, and adequacy of control of HTN.

A survey of 26,000 adults in South India showed a hypertension prevalence of 20% (men 23% and women 17%) but 67% of those with hypertension was unaware of their diagnosis. Majority of hypertensive subjects still remain undetected and the control of hypertension is also inadequate. This calls for urgent prevention and control measures for hypertension.

An alarming rise in HTN projected by Global Burden of Hypertension 2005 study, GBD 2010 study and WHO 2011 NCD India specific data portray a grim picture for the 17.8% of the world's population who reside in India. Previously, a systematic review on the prevalence of HTN in India, for studies published between 1969 and July 2011, reported a range between 13.9 to 46.3% and 4.5 to 58.8% in urban and rural areas of India, respectively .

The theme for World Health Day (WHD) 2013 is “high blood pressure”. The goal of WHD 2013 is to reduce heart attacks and strokes. Keeping in line with the WHO-Government of India Country Cooperation Strategy, the WHD 2013 events in India are aimed at raising the awareness amongst national policymakers, program managers and other stakeholders on the need to strengthen the Indian health system to make it competent enough to respond to hypertension and related co morbidities.

Diet plays a key role in controlling the blood pressure levels in the body and maintaining a healthy life. The DASH diet includes eating foods with potential antihypertensive activity like fresh fruits and vegetables (amla juice, beetroot garlic and radish), whole grains, milk, etc and lowering the intake of salt and processed foods. Also higher intake of foods rich in potassium like banana, coconut water, lentils (dals) and sweet potato helps in lowering blood pressure.

In 21st century the attention is focused on alternative and complementary therapies. As a community health nurse, had a chance to visit both rural and urban areas at Chennai. The investigator during the home visit found that more number of hypertensive clients in Choolai. Many journals and articles provide generalized statement on the benefits of amla juice in various disorders. Therefore the investigator was interested to create empirical evidence on the efficacy of amla juice intervention on hypertension clients. So, this study was conducted with the objective of finding out the efficacy of amla juice intervention on Hypertension clients.

1.2 Statement of the problem:

A study to evaluate the effectiveness of amla juice with honey in control of blood pressure among hypertensive clients in selected urban area at Chennai.

1.3 Objectives:

- To assess the pretest and post test blood pressure level among hypertensive client in experimental group
- To assess the pretest and post test blood pressure level among hypertensive client in control group
- To identify the effectiveness of Amla juice with honey in the control of blood pressure level among hypertensive client.
- To find out the association between certain selected demographic and clinical variable with reduction of blood pressure level in experimental group

1.4 Operational definitions:

- **Evaluate**: It refers to assess the effectiveness of amla juice with honey in reducing blood pressure level with the help of checklist.
- **Effectiveness**: It refers to the desired change brought by the Supplementation of amla juice with juice in control the blood pressure level.
- **Amla juice with honey**: It refers to an extract from 50 grams of amla added with 5 ml of honey.
- **Blood pressure**: Blood flows through the arteries due to force that is exerted every time the heart beats to pump blood to various organs of your body. The force with which blood flows exerts pressure on the walls of the arteries. The more the pressure, the harder your heart has to work to pump blood.

- **Hypertensive client**: It denotes people having elevated blood pressure above 140/90 mm of Hg of both sexes and age limit between 40 to 60 years.

1.5 Assumptions:

The researcher assumes that

- Consumption of amla juice with honey helps to control the blood pressure levels among hypertensive clients and maintains good health.

1.6 Hypotheses:

H1: There will be a significant difference in the pretest and post test blood pressure level among hypertensive clients between the experimental and control group.

H2: There will be a significant association between selected demographic and clinical variables among hypertensive clients with the reduction of blood pressure in experimental group.

1.7 Delimitations:

- The study is delimited to a period of four weeks
- The study is delimited only to the area of urban clients having high blood pressure.
- The study is delimited within the selected streets of Choolai.

CHAPTER – II

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

This chapter deals with the report of information found in the literature related to selected area of study. The review describes, summarizes, evaluates and clarifies this literature. It gives a theoretical base for the research and helps to determine the nature of research.

Review of literature in this study is arranged under the following headings:

PART I:

Section A: studies related to prevalence/incidence of hypertension

Section B: studies related to effect of amla juice and honey on health

Section C: studies related to effect of amla juice with honey on hypertension

PART II:

Conceptual framework

PART I

2.1 Section A: studies related to prevalence/incidence of hypertension

High blood pressure (BP) is a major public health problem in India and its prevalence is rapidly increasing among both urban and rural populations. In fact, hypertension is the most prevalent chronic disease in India.

Bhansali A, Dhandania VK, et.al.,(2015) conducted a community based study to determine the prevalence of hypertension (HTN) and its risk factors in urban and rural India. In Phase I of the Indian Council of Medical Research-India Diabetes (ICMR-INDIAB) study, individuals aged ⩾20 years were surveyed using a stratified multistage sampling design, in three states (Tamil Nadu, Maharashtra and Jharkhand) and one union territory (Chandigarh) of India. Blood pressure was measured in all study subjects (n=14 059). Overall

age-standardized prevalence of HTN was 26.3% (self-reported: 5.5%; newly detected: 20.8%). Urban residents of Tamil Nadu, Jharkhand, Chandigarh and Maharashtra (31.5, 28.9, 30.7 and 28.1%) had significantly higher prevalence of HTN compared with rural residents (26.2, 21.7, 19.8 and 24.0%, respectively). In conclusion, prevalence of undiagnosed HTN is high in India and this call for regular screening.

Logaraj Muthunarayanan, John Kamala Russell, et al. (2015) A cross-sectional study was conducted among 30 villages of a rural block in Tamil Nadu from March 2012 to February 2013 in the age group of 40-79 years attending our fixed mobile clinics using structured interview schedule and subsequently, the World Health Organization/International Society of Hypertension (WHO/ISH) risk charts were used to predict the 10 years absolute risk of fatal or nonfatal cardiovascular event. A total of 482 individuals were studied of which 68.3% were women and 31.7% were men. Prevalence of overweight, diabetes, and systolic hypertension was found to be 60%, 22.8%, and 34.6%, respectively. A majority (79.9%) of the study population had 10 years cardiovascular risk of <10% while only 2.5% had a risk of more than 40%. As the age advances, the proportion of participants with high-risk also increased and this trend was statistically significant ($P = 0.001$).

Saurabh RamBihariLal Shrivastava, et al. (2014) A Community-based Study to Estimate the Prevalence and Determinants of Hypertension in a rural Area of Puducherry duration of 2 years (March 2012-February 2014) was conducted among persons aged 25 years and above, residing in two villages of Puducherry. The prevalence of hypertension in the study population was 24.7%, with higher prevalence being observed in males (28.7%) than females (21.0%). The statistical analysis revealed a significant association between reduced physical activity/week, addiction to smoking and alcohol, abdominal obesity, high salt intake, and presence of hypertension.

Tulika Goswami Mahanta, Bhupendra Narayan Mahanta, et al. (2014) A community-based cross-sectional study on Behavioural risk factors distribution of cardiovascular diseases and its association with normotension, pre hypertension and hypertension amongst tea garden population in Dibrugarh district of Assam found that Prevalence of hypertension was 44.8% (551) with 481 (39.1%) being pre hypertensive. Prevalence of tobacco use was 1107 (89.9%) with 1049 (85.2%) being current users while alcohol use was 858 (69.7%). Inadequate intake of green leafy vegetables (≤3 servings/week) was found in 807 (65.6%) and fruits in 1210 (98.3%). Weekly intake of high energy food was found in 176 (58.66%) while added salt intake in 758 (61.6%), Physical inactivity (mainly sedentary) in 339 (27.5%). MLR analysis showing significant association between educational status, stress, high energy food, tobacco use, alcohol, overweight/obesity and diabetes with prehypertension and physical activity, high energy food, tobacco use, alcohol, extra salt and diabetes with hypertension.

Devi P, Rao M, Sigamani A, et al. (2013) conducted a systematic review about Prevalence, risk factors and awareness of hypertension in India. Prevalence was reported in 48 studies with sample size varying from 206 to 167 331. A significant positive trend ($P<0.0001$) was observed over time in prevalence of HTN by region and gender. Awareness and control of HTN (11 studies) ranged from 20 to 54% and 7.5 to 25%, respectively. Increasing age, body mass index, smoking, diabetes and extra salt intake were common risk factors. In conclusion, from this systematic review, we record an increasing trend in prevalence of HTN in India by region and gender. The awareness of HTN in India is low with suboptimal control rates.

Midha T, Nath B, Kumari R, et al. (2013) A meta-analysis of prevalence studies on hypertension in India from January 2000 to June 2012 reveals a high prevalence of hypertension in the urban (40.8%) as well as rural population (17.9%). The prevalence of hypertension is markedly higher in the urban population compared to the rural population, but the prevalence in the rural

population is also a matter of concern with almost every fifth individual at risk. This is indicative of the epidemiological transition, which must raise an alarm for policy makers and health care professionals. Primordial and primary prevention of hypertension can bring about a substantial reduction in cardiovascular morbidity and mortality which occurs as a consequence of hypertension.

Meng, Lin, et al. (2013) have conducted a meta-analysis study found that depression increased the risk of hypertension incidence [adjusted relative risk 1.42, 95% confidence interval (CI) 1.09 to 1.86, P=0.009] and the risk was significantly correlated with the length of follow-up (P=0.0002) and the prevalence of depression at baseline (P<0.0001) and concluded that depression is probably an independent risk factor of hypertension. It is important to take depression into consideration during the process of prevention and treatment of hypertension. Further studies are needed to exclude the effects of other confounding factors.

Dr. R. Prasad (2012) conducted a study on prevalence of hypertension in rural Tamil Nadu states that Tamil Nadu has started a new project this year to screen and treats people for hypertension. It started with a pilot project in Sivaganga and Virudhunagar districts during 2007-2010. About 11,31,000 people were screened for hypertension in 98 health facilities during the pilot project. The Tamil Nadu Health Systems Project (TNHSP) has scaled up the pilot project in 16 districts With that the entire State will be covered. According to him, in the third quarter alone (July to September 2012), 8,57,616 people who came to healthcare facilities (in the 16 districts) for other ailments were screened. Of these, 60,517 were found to have hypertension. The percentage of people testing positive for hypertension was 7.06 per cent.

According to the **National Heart, Lung and Blood Institute (NHLBI), (2011)** the blood pressure can be unhealthy and if it stays only slightly above

120/80mmHg. The high blood pressure makes the work too hard, which can cause stroke, hardening of arteries, heart failure, kidney disease and blindness.

A community based survey (2010) for the prevalence of hypertension was carried out on a random urban sample of 13,723 adults in the age group 25-64 yr from the Union Territory of Delhi, India. The overall prevalence rate/1000 adults were 127.5; 116.6 in males and 136.8 in females. Mild Hypertension pressure between 91-104 mm Hg) predominated in the whole group, the proportion decreasing with increasing age in both sexes. The study emphasizes the enormity of the problem of hypertension in an urban population in India and poor control of blood pressure achieved in the community.

According to the **Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII)**, in individuals older than 50 years, SBP of greater than 140 mm Hg is a more important cardiovascular disease risk factor than DBP. Beginning at a BP of 115/75 mm Hg, the cardiovascular disease risk doubles for each increment of 20/10 mm Hg. Individuals who are normotensive (SBP < 120 mm Hg; DBP < 80 mm Hg) at 55 years will have a 90% lifetime risk of developing hypertension.

Frank M Sacks M.D, Laura p, et al. (2010) A total of 412 participants were randomly assigned to eat either a control diet typical of intake in the united states of the DASH diet within the assigned diet, participants ate food with high and low levels of Sodium for 30 conservative days in each random order. Results the DASH diet with a low Sodium level led to a mean systolic blood pressure that was 7.1mmHg lower in participants without hypertension and 11.5mmHg lower in participants with hypertension. They had concluded the reduction of Sodium intake to levels below the current recommendation of 100mm of per day and the DASH diet both lower blood pressure substantially.

Section B: studies related to effect of amla juice and honey on health.

Yanze Liu, Fan Liu (2015) in International Journal of Chemistry and Pharmaceutical Sciences states that commonly known as Yuganzi in Chinese and Indian gooseberry or amla in English, is a Phyllanthaceaeous plant indigenously grown in the area of Nepal, India, Sri Lanka, throughout South-East Asia to southern China. All parts of the plant are used for medicinal purposes, especially the fruit, which has been used in traditional Chinese medicine and Indian Ayurveda for the treatment of diarrhea, jaundice, and inflammation. Modern pharmacological researches revealed its antidiabetic, hypolipidemic, antibacterial, antioxidant, antiulcerogenic, hepatoprotective, gastroprotective, and chemopreventive properties. The fruit of the plant is also used as a tonic to build up lost vitality and vigor with its highly nutritious and abundant phenolic compounds, tannins, flavonoids, vitamins, amino acids, and minerals .

Harpreet Singh Grover, Himanshu Deswal et al. (2015) A review on therapeutic effects of amla in medicine and dentistry showed that it has its beneficial role in cancer, diabetes, liver treatment, heart trouble, ulcer, anemia, and various other diseases. Similarly, it has the application as antioxidant, immunomodulatory, antipyretic, analgesic, cytoprotective, antitussive, and gastroprotective. In addition, it is useful in memory enhancing, ophthalmic disorders, and lowering cholesterol level.

Shruti Saxena (2014) states that the Amla or Neelikkai (Phyllanthus emblica) is also called Amalka in Hindi. It is also referred to as the Indian Gooseberry. Amla is one of the best herbs you can consume on daily basis without any side effects. Gooseberry juice has great strength to replenish your lost energy source. The presence of antioxidants like vitamin C is one of main factors of sourcing back your energy. This small gooseberry has the same food value as two oranges, which is anti-scorbutic. Gooseberries are very good for those suffering from respiratory problems. It is one of the main ingredients in

Ayurveda as it has carminative and stomachic properties. It is also used to cure problems like diabetes, cerebral, gastro & cardiovascular illnesses, low libido and many more.

Sankaran mirunalini, velusamy vaithiyanathan, et al. (2013) a mini review on amla: a novel ayurvedic herb as a functional food for health benefits states that the medicinal plants are natural gift to human lives to promote disease free healthy life. Phyllanthus emblica, Commonly known as amla is widely distributed in tropical and sub tropical areas and has therapeutic potential against deleterious diseases. Earlier it becomes a notable fruit for its rich amount of vitamin C, polyphenols such as tannins, gallic acid, ellagic acid, flavonoids like quercetin and rutin

Karadka Ramdas Thilakchand, Rashmi Teresa Mathai, et al. (2013) a review on Hepatoprotective properties of the Indian gooseberry (*Emblica officinalis* Gaertn) Amla is also reported to impart beneficial effects on liver function and to mitigate hyperlipidemia and metabolic syndrome. Amla possesses protective effects against chemical-induced hepatocarcinogenesis in animal models of study. Additionally, the phytochemicals quercetin, gallic acid, corilagin and ellagic acid are also reported to protect against the cytotoxic effects of paracetamol, microcystins, galactosamine and lipopolysaccharide. The hepatoprotective actions of amla appear to be mediated by its free radical scavenging, antioxidant, anti-inflammatory and modulation of the xenobiotic detoxification process and lipid metabolism.

Biswas Gopa, Jagatkumar Bhatt, et al. (2012) conducted a study to evaluate the efficacy of *Amla* in patients with type II hyperlipidemia and compare its hypolipidemic effects with those of simvastatin reveals that Sixty type II hyperlipidemic patients of both sexes with plasma. Out of total 60 selected patients, 40 were treated with *Amla* juice daily for 42 days and 20 patients were given simvastatin capsule (20 mg) daily for 42 days. Treatment with *Amla* produced significant reduction of TC (P<0.0001), LDL (P<0.0001),

triglyceride (TG) and VLDL (P<0.0002), and a significant increase in HDL levels (P<0.0002). Similarly, treatment with simvastatin produced significant reduction of TC (P<0.0001), LDL (P<0.0009), TG and VLDL (P<0.017), and a significant increase in HDL levels (P<0.0001). Both treatments produced significant reduction in blood pressure; however, this beneficial effect was more marked in patients receiving *Amla*.

In view of the above findings, it is suggested that *Amla* produced significant hypolipidemic effect along with a reduction in blood pressure. Addition of *Amla* to the currently available hypolipidemic therapy would offer significant protection against atherosclerosis and coronary artery disease, with reduction in the dose and adverse effects of the hypolipidemic agents.

Shreesh Ojha, et al. (2009) have conducted a study on Protective effect of *Emblica officinalis* (amla) on isoproterenol-induced cardiotoxicity showed that *Emblica officinalis*, commonly known as amla, is an important medicinal plant reputed for its dietary and therapeutic uses. The aim of the present study was to investigate the protective role of *E. officinalis* against isoproterenol (ISP)-induced cardiotoxicity and elucidate the possible mechanism involved. Results of the present study demonstrate cardioprotective potential of *E. officinalis* attributed to its potent antioxidant and free radical scavenging activity as evidenced by favorable improvement in hemodynamic, contractile function and tissue antioxidant status.

Siddha, Unani Tibetan, Sri Lankan, and Chinese systems of medicine utilize *E. officinalis*. *E. officinalis* is considered to be a powerful *rasayana* (rejuvenator) and to be useful in delaying the degenerative as well as a senescence process. It helps to increase longevity, improve digestion and to treat constipation. It also diminishes fever, cleanses the blood, decreases cough, eases asthma, strengthens the heart, benefits the eyes, encourages hair growth, invigorates the body, and augments the intellect, as per the ayurvedic system of medicine.

In several folk medicines the fruits, which are astringent, are beneficial in treating ophthalmic problems, dyspepsia, gastritis, hyperacidity, constipation, colitis, hemorrhoids, hematuria, menorrhagia, anemia, diabetes, cough, asthma, osteoporosis, premature graying of hair, weakness and fatigue. *E. officinalis* is also stated to have hepatoprotective, cardioprotective, diuretic, laxative, refrigerant, stomachic, restorative, alterative, antipyretic, and anti-inflammatory properties. Besides being a hair tonic, *E. officinalis* also prevents peptic ulcer dyspepsia, and is a digestive medicine.

Section C: studies related to effect of amla juice with honey for hypertension

Beaker H, Bester M, et al. (2015) was conducted a study to determine nutrition knowledge and dietary practices of hypertension adults. Randomly selected from a 31 day hospitals and the first participants attending the hypertension clinics per day were recruited. The total of 85 participants was evaluated. In that weight, height, waist and hip circumference of each participant was measured, as well as their blood pressure was measured in that the results is only 12.9% of participants is had a normal weight, 25.9% were overweight and 61.2% were obese. 84.7% recognized the association between obesity and hypertension. They concluded uncontrolled blood pressure readings were found in 61.2% of these patients at the clinic.

Jason Jerome D'souza, **et al**. (2014) conducted a study on Anti-hypertensive effects of the Indian indigenous fruit *Emblica officinalis* Gaertn: active constituents and modes of action Dietary constituents are shown to play an important role in the development of hypertension. Studies have shown that the fruits of *Emblica officinalis* Gaertn or *Phyllanthus emblica* Linn, colloquially known as Indian gooseberry or amla and/or some of its important constituents (including gallic acid, gallotanin, ellagic acid and corilagin), possess anti-hypertensive effects through their antioxidant and free radical scavenging properties. Amla has also been reported to prevent/reduce

hyperglycemia, cardiac complications, diabetic nephropathy, neuropathy, cataractogenesis and protein wasting. However, clinical trial data with human subjects are limited and preliminary.

Bhavyajyoti Chilukoti (2014) have conducted a study on Natural alternatives for high blood pressure medication showed that Diet plays a key role in controlling the blood pressure levels in the body and maintaining a healthy life. The DASH diet includes eating foods with potential antihypertensive activity like fresh fruits and vegetables (amla juice, beetroot garlic and radish), whole grains, milk, etc and lowering the intake of salt and processed foods. Also higher intake of foods rich in potassium like banana, coconut water, lentils (dals) and sweet potato helps in lowering blood pressure.

Yvonne Plantinga, Lorenzo Ghiadoni, et al. (2010) A randomized, double-blind, placebo-controlled study on Supplementation With Vitamins C and E Improves Arterial Stiffness and Endothelial Function in Essential Hypertensive Patients crossover study design was used to assign 30 male essential hypertensive patients to either vitamin C (1 g) and vitamin E (400 IU) or placebo for 8 weeks. Combined treatment with vitamins C and E has beneficial effects on endothelium-dependent vasodilation and arterial stiffness in untreated, essential hypertensive patients. This effect is associated with changes in plasma markers of oxidative stress.

Kuwait Medical Journal (2009) - Dietary management with reduced sugar and salt intake and supplementation with B vitamins such as B6 and with anti-oxidant vitamins such as vitamin C and E, lepoic acid has the potential to lower blood pressure in persons with essential hypertension. Moderate intake of ethanol may also produce an anti-oxidant effect, lower blood pressure and provide cardiovascular protection.

The International Journal of Food Science and Nutrition, (**2009)** states that honey promotes healthy heart by improving blood circulation and preventing clogging of arteries. This is possible because honey reduces the

level of bad cholesterol (LDL) and concurrently increased of good cholesterol (HDL) in blood. It helps in removal of cholesterol from the walls of blood vessels to prevent build-up of plaque. Honey mixed with cinnamon revitalizes the arteries and veins of the heart, and reduces blood cholesterol by up to 10%.add 1-2 tablespoon of honey and 1/3 teaspoon cinnamon to warm water and drink it daily. take on a regular basis , this concoction helps the risk of heart attacks.

John Maher (2008) conducted a study on Super Fruits: The Power of Polyphenols showed that **Indian gooseberry**, aka amla fruit, has been shown to reduce the effect of aging on renal dysfunction related to oxidative stress and significantly reduce systolic blood pressure. Amla may therefore useful for the prevention of age-related renal disease. Amla has also been shown to help protect smokers and benefit as a natural skin care ingredient.

Takako Yokozawa, et al. (2007) from Institute of Natural Medicine, Graduate School of Biomedical Sciences, in Japan have conducted a study on Amla (*Emblica officinalis* Gaertn.) Attenuates Age-Related Renal Dysfunction by Oxidative Stress have showed the results as amla would be a very useful antioxidant for the prevention of age-related renal disease like mainly hypertension.

Many researcher findings draw a close association of amla juice and honey vitamin C in reducing blood pressure of hypertensive clients thereby reducing cardiovascular mortality and morbidity.

PART II

2.2 CONCEPTUAL FRAMWORK

Here, the conceptual framework was based on **Modified Daniel L. Stufflebeam's CiPP (1966)** which included context evaluation, input evaluation, process evaluation and product evaluation.

Context evaluation:

It includes the selected factors such as age, education, occupation, family history of hypertension, dietary habits, duration of illness, and exercise pattern. The setting was at the urban area, Choolai.

Input evaluation:

It refers the resources used in the study process. In this study, input evaluation includes measuring pre-assessment blood pressure level of hypertensive clients by Sphygmomanometer Blood Pressure monitor for the selection of experimental and control group.

Process evaluation:

It specifies the evaluation of implementation process including the interaction between the client and the care giver. In this process, regular administrations of amla juice with honey 150 ml after the breakfast for 15 days. 150 ml of amla juice is prepared and served daily in the morning after food.

Product evaluation:

This refers to the output as a result of the intervention. It includes measuring post test Blood pressure level for both groups after the intervention of 15 days.

Feedback:

It refers to the information sent backward from the product evaluation to the input evaluation in order to gain understanding and modify or accept the strategies.

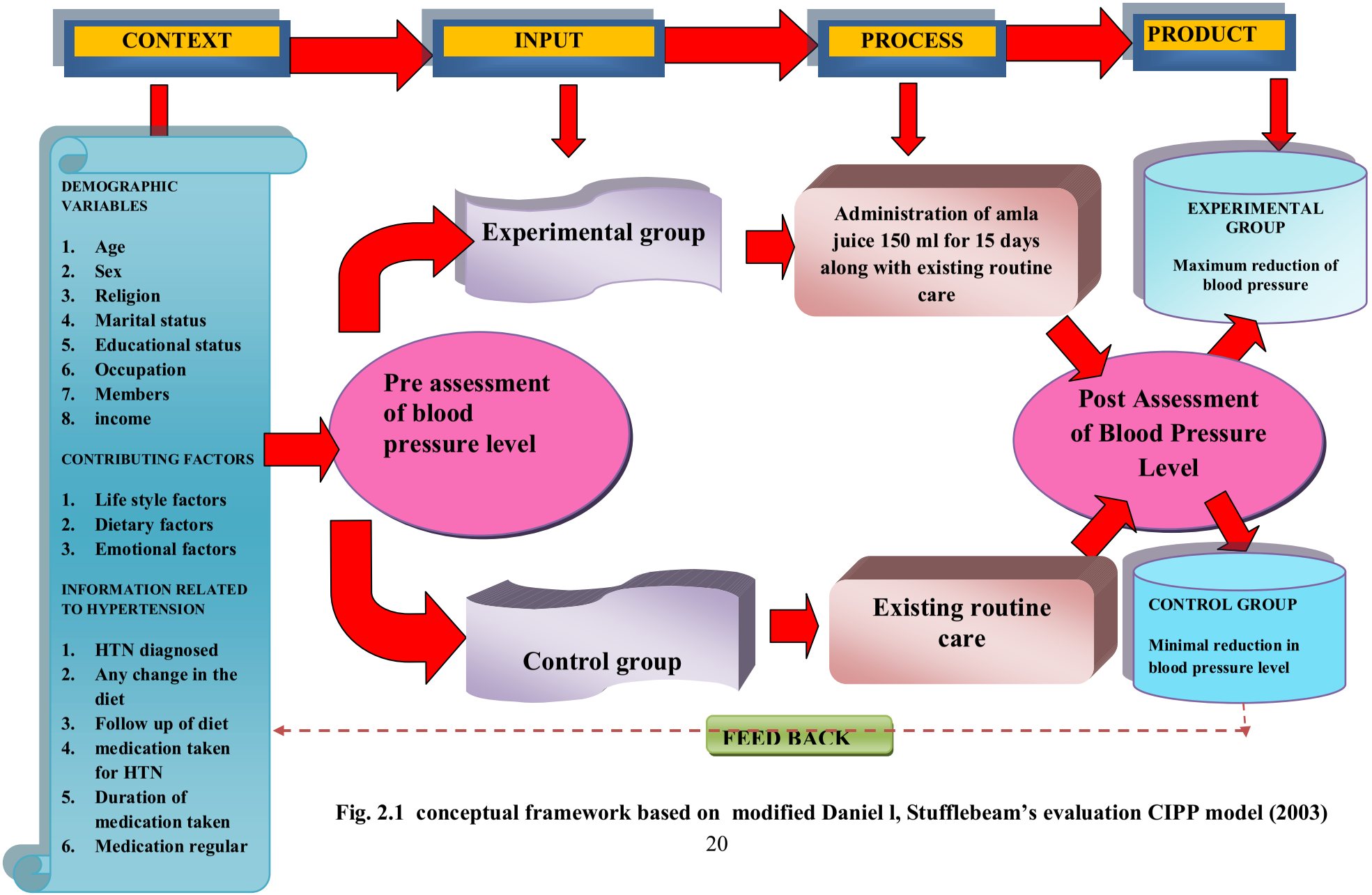


Fig. 2.1 conceptual framework based on modified Daniel l, Stufflebeam's evaluation CIPP model (2003)

CHAPTER – III

RESEARCH METHODOLOGY

CHAPTER III

METHODOLOGY

This chapter includes research approach, data collection period, study setting, study population, sample size, criteria for sample selection, sampling technique, research variables, development and description of tool, content validity ethical consideration, pilot study, reliability, data collection procedure, data entry and data analysis.

3.1 Research approach

A research approach guides the researcher in the nature of data to be collected and the method of analysis. To accomplish the objectives of the current study, **quantitative research approach** was considered as an appropriate approach by the investigator.

3.2 Data collection period

The study done for **four weeks (**16.07.15 to 15.08.15)

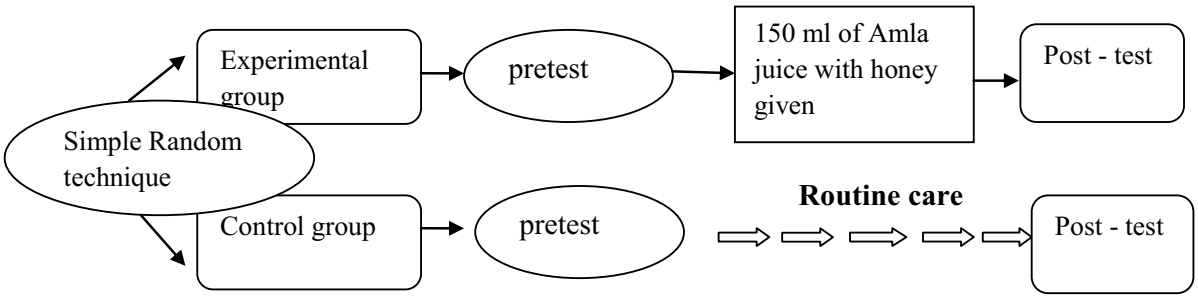
3.3 Setting of the study

The selection of setting was done on the basis of the feasibility for conducting the study, availability of the sample, convenience to the investigator, geographical proximity and co operation from the authority. The study was conducted in the urban area at Choolai belongs to Chennai Corporation which covers ten zones. Out of ten zones, our adopted area, choolai belongs to sixth zone. Choolai has four wards and 16 streets covering total population of 58,744. Out of 16 streets Avadi srinivasan and Arimuthu mesthri street for experimental group and Angalamman koil street (north and east) were selected for control group.

3.2 Study design

The research design used in this study was **experimental design,** which helps to provide factual information about the existing phenomena.

Pre test – post test control group design:



3.5 Study population

Population is the entire aggregation of subjects that meet a designed set of criteria. In this study the population will be a client both male and women who are having hypertension between the age of 40-60 years residing at Choolai.

3.6 Sample size

The study sample comprises of 60 (30 in experimental group and 30 in control group) Hypertensive clients.

3.7 sampling criterion

3.7.1 Inclusion Criteria:

- Clients who are willing to participate in the study
- Clients who are in the age group of 40-60 years
- Clients who are having hypertension above 140/90 mm Hg
- Clients who are able to speak and understand English and Tamil
- Clients who are present at the time of data collection period

3.7.2 Exclusion Criteria:

- Hypertensive Clients whose blood pressure is above 180/110 mm Hg
- Clients with any other co-morbid illness
- Clients who are sensitivity to amla juice
- Pilot study samples were not included in main study

3.8 Sampling technique

The sampling technique employed to recruit the samples for the study was **simple random sampling method**. The researcher conducted the survey in the study area of Choolai to identify total hypertensive clients based on the inclusion and exclusion criteria. Within four streets, out of 141 hypertensive clients, from that 60 samples were selected by lottery method.

3.3 Research variable

Dependent variables: Blood pressure level among hypertensive clients

Independent variables: Amla juice with honey

3.10 Development and description of the tool

3.10.1 Development of tool:

The development of the tool was developed based on the objectives of the study, review of literature and the opinion from the experts and it helped the investigator in the development of the tool.

The tool used for data collection was formulated by the investigator by consulting the experts in nursing, statistics and community medicine department.

The tool used for measuring blood pressure is **sphygmomanometer and stethoscope.** The same tool was used throughout the study for both experimental and control group to monitor the blood pressure respectively.

3.10.2 Description of the tool:

The tool consists of three sections. The tool used in this study was an Interview and recording blood pressure for hypertensive clients. The tool consist of three sections as follows;

Section A: Demographic data of the Hypertensive women which includes Age, sex, Religion, marital status, Education, Occupation, members in a family, Income

Section B: clinical variables like Information related to hypertension and factors contributing for hypertension like life style, emotional and dietary factors.

Section C: Recording blood pressure includes pre assessment of blood pressure level of both experimental and control group and there after post interventional assessment of blood pressure on the 15th day for both the group.

Blood pressure assessment:

The investigator has to assess and record blood pressure level before and after administration of amla juice.

GROUP	PRE TEST O1	TREATMENT X	POST TEST O2
Experimental group	Blood pressure level assessed	150 ml of amla juice given	Blood pressure level assessed
Control group	Blood pressure level assessed	-	Blood pressure level assessed

Maximum reduction of blood pressure level: 15 - 20mm Hg

Minimum reduction of blood pressure level: No reduction - <5 mm Hg

3.10.3 Content validity

The content validity refers to the degree to which an instrument measures what it is supposed to measure. The content of the tool was validated by one medical expert, one community health nursing Expert and one statistical export. The expert's suggestions were incorporated and the tool was finalized and used by the investigator for the main study.

3.11 Ethical consideration

The proposal of the study was approved by the experts prior to the pilot study by the Research and Ethics Committee of Madras Medical College, Chennai.

3.12 Pilot study

A pilot study was conducted at streets of Choolai in Chennai by obtaining prior permission from the authorities and conducted with six patients (3 for experimental group in C.K.P street and 3 for control group in V.V koil street), who fulfilled the inclusion criteria. The study in which the pilot study was conducted was excluded from the main study. The data related to the variables were collected. The pre and post assessment of blood pressure was assessed for both the groups. About 150 ml of amla juice was given to the experimental group for six days daily under the supervision of investigator. Results were analyzed. There was a significant decrease in the level of blood pressure among hypertensive clients in experimental group after consumption of amla juice with honey. The investigator found that the instrument was feasible to use and the same tool was used for main study.

3.13 Reliability

After pilot study, reliability of the tool was assessed by using test inter-rater method and its correlation coefficient r value of SBP is 0.92 and DBP is 0.90. These correlation coefficients are very high and it is good tool for assessing the effectiveness of Amla juice in reducing blood pressure among hypertensive clients. The tool was highly reliable, feasible and practicable.

3.14 Data collection procedure

The study was conducted in selected streets of Choolai, Chennai. A self introduction was given by the investigator and the informed written consent was obtained from the patients and benefits of amla juice were explained to the participants. The objectives and purpose of the study were explained and confidentiality and privacy was maintained. The client was informed that having the freedom to leave the study with their own reason. The time taken for the data collection for each client was 10-15 minutes. Pre and post-assessment of blood pressure level was assessed in the same mid morning, upright sitting position, left hand was used irrespective of both the group. Blood pressure was measured three times on the upper left arm after at least 5 minutes of rest using a validated mercury blood pressure device (Diamond brand). The mean value of the 2nd and 3rd measurement was used for analysis. About 150 ml of amla juice was given in the morning after breakfast daily for 14 days and post assessment was conducted on the 15th day in both experimental and control group.

Intervention protocol:

Table 1: Intervention protocol for both experimental and control group

	Experimental group	Control group
Place	Choolai (client's house)	Choolai (client's house)
Intervention tool	150 ml of amla juice prepared from 50 grams of amla and add 5 ml of honey given	-
Duration	Fourteen days	Fourteen days
Frequency	Once in a day after break fast	Routine care daily
Time	8 a.m – 9 a.m	9 a.m – 10 a.m
Administered by	Investigator	-

Preparation of Amla juice:

Ingredients:

- Amla - 500 gms
- Water - 1450 ml
- Honey - 50 ml

Preparation:

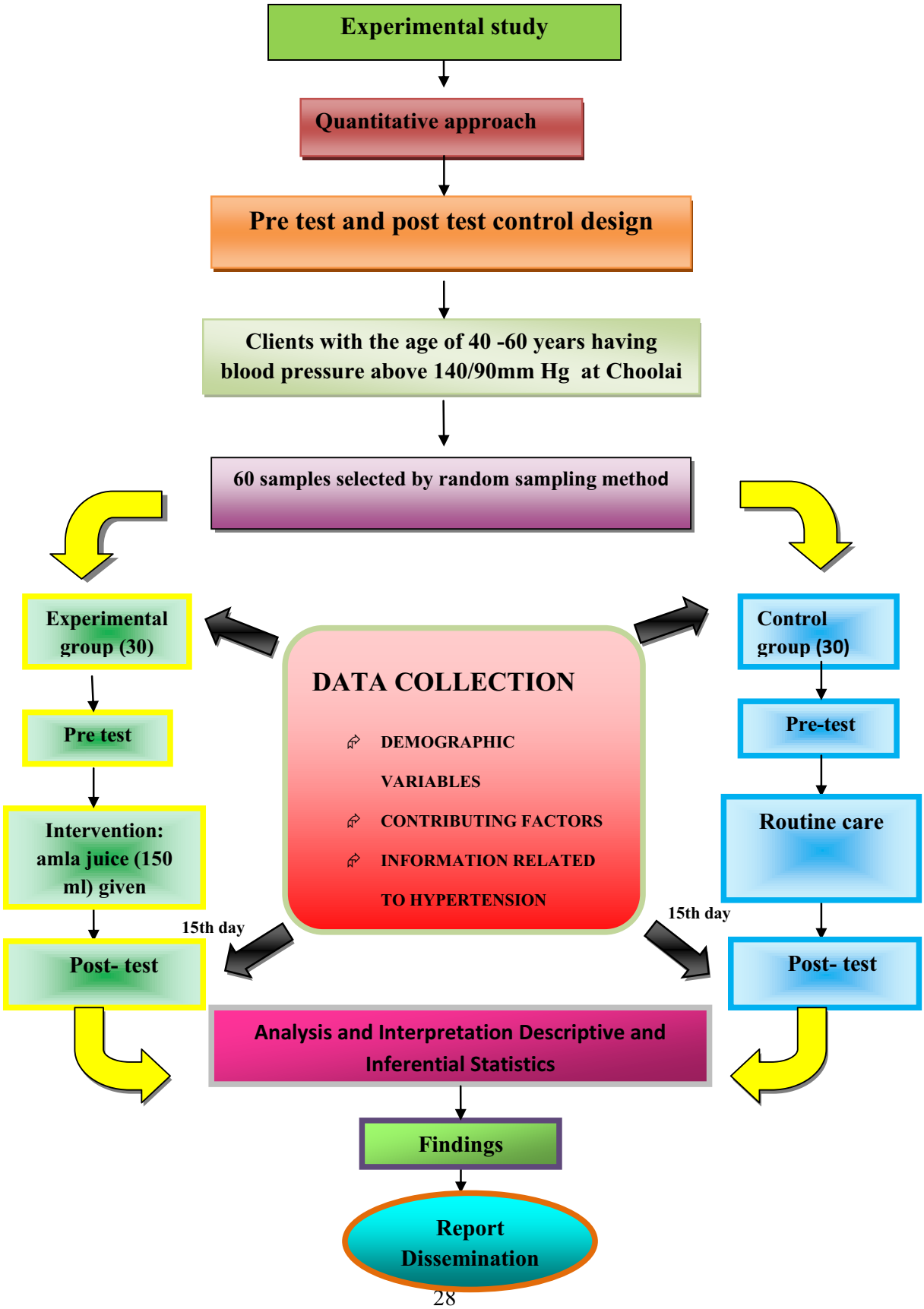
Take 500 grams of amla, clean with water and remove off the seed from inside. Slice it and grind well for 2-3 minutes. Then filter the juice. Then add 1450 ml of water to dilute it. Add 50 ml of honey and stir it. Then distribute 150 ml of amla juice in a measuring cup for 10 clients per day.

3.15 Data entry and data analysis

The data were entered in Excel sheet and completed in two weeks. The data was rechecked and were analyzed by using SPSS windows. The data were analyzed by using both descriptive and inferential statistics.

- ❖ Organize the data
- ❖ Frequency and percentage distribution of the demographic variables.
- ❖ Data on blood pressure levels among control and experimental group were analyzed by "t" test.
- ❖ Association between groups score was analyzed using Pearson chi square test.
- ❖ Difference between groups score was analyzed using student's independent t-test.
- ❖ Difference between pretest and posttest score was analyzed using student's paired t-test.

Fig 3.1: Schematic representation of research design



CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

CHAPTER IV

DATA ANALYIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collection toassess the effectiveness of amla juice with honey in the control of blood pressure among hypertensive clients.

The data collected from 60 samples (30 experimental group and 30 control group) of Hypertensive clients are being analyzed and tabulated on the basis of the objectives of the study.

Organization of the data:

The study findings of the samples are presented in the following sections.

Section A: Frequency and Percentage description of demographicand clinical variables of hypertensive clients.

Section B:Assess the pre test and post blood pressure level among hypertension clients in experimental group.

Section C: Assess the pre test and post blood pressure level among hypertension clients in control group.

Section D: Comparison of pre test and Post test Blood Pressure among hypertensive client in experimental and control group.

Section E: Identify the effectiveness of amla juice among Hypertensive client in Experimental group.

Section F: Associate the findings with the selected demographic and clinical variables among hypertensive clients in experimental group.

STATISTICAL ANALYSIS:

- ✓ Demographic variables in categorical/dichotomous were given in frequencies with their percentages.

- ✓ SBP and DBP scores were given in mean and standard deviation.

- ✓ Association between level of hypertension and demographic variables were analyzed using Pearson chisquare test.

- ✓ Difference between experiment and control was analyzed using student independent t-test.

- ✓ Difference between pretest and posttest scores was analyzed using student paired t test.

- ✓ Effectiveness of study in terms of reduction of hypertension was analyzed using proportion with 95% CI and mean difference with 95% CI.

- ✓ $P<0.05$ was considered statistically significant.

SECTION A

Frequency and percentage description of demographic variables of hypertensive client

Table 2: Demographic profile of hypertensive clients

Demographic variable		Group				Chi-square test
		Experimental group		Control group		
		frequency	In %	frequency	In %	
Age	40-45 yrs	7	23.3	7	23.3	$\chi2=0.001$ p=1.0
	46- 50 yrs	8	26.7	8	26.7	
	51-55 yrs	9	30	9	30	
	56-60 yrs	6	20	6	20	
Gender	Male	12	40	12	40	$\chi2=0.001$ p=1.0
	female	18	26.7	18	26.7	
Religion	Hindu	16	53.3	16	53.3	$\chi2=0.001$ p=1.0
	Christian	8	26.7	8	26.7	
	Muslim	6	20	6	20	
Marital status	Single	4	13.3	4	13.3	$\chi2=0.001$ p=1.0
	Married	19	63.3	19	63.3	
	Divorce	1	3.3	1	3.3	
	Widow/widower	6	20	6	20	
Educational status	Primary education	3	10	3	10	$\chi2=0.2$ p=0.9
	Secondary education	9	30	9	30	
	Degree	5	16.7	5	16.7	
	Diploma	5	16.7	5	16.7	
	Illeterate	8	26.7	7	23.3	
occupation	Profession	2	6.7	2	6.7	$\chi2=1.1$ p=0.7
	Bussiness	7	23.3	7	23.3	
	Daily wages	7	23.3	7	23.3	
	Unemployed	14	46.7	17	56.7	
members	2	2	6.7	2	6.7	$\chi2=0.8$ p=0.8
	3	6	20	4	13.3	
	4	10	33.3	13	43.3	
	5 and above	12	40	11	36.7	
Income	2000 – 5000	9	30	9	30	$\chi2=0.001$ p=1.0
	5000 - 10000	12	40	12	40	
	>10000	9	30	9	30	

* significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 2 reveals that, on **age** majority of subjects 23.3% were 40 – 45 years, 26.7% were 46 – 50 years, 30% were between 51 – 55 years and 20% were between 56 – 60 years of agein both experimental group and control group.

Based on**gender**, majority of subjects 40 % were males and 60%were female in both experimental and control group.

Based on **religion**, majority of subjects 53.3% were belongs to Hindu, 26.7% were Christian and 20% of them were Muslim in both experimental and control group.

According to **marital status**, the subjects of 13.3% were single, the higher proportion 63.3% was married, 3.3% were divorcee and 20% were widow or widower in both experimental and control group.

Regarding the **education**, 10% were primary educated, the higher proportion 30% belongs to secondary education, 16.7% were degree and diploma qualified and 26.7% and 23.3% had no formal education in both experimental and control group.

Among the study participants, regarding **occupation** about 6.7% were professionals, 23.3% were in business and worked as a daily wages. The higher proportion of 46.7% in experimental and 56.7% in control group belongs to unemployed.

Regarding the **number of members in the family**, about 6.7% of family are having two members , 20% in experimental and 13.3% in control group are having three members ,the more percentage 33.3% in experimental and 43.3% in control group are having four members and 40% in experimental and 36.7% in control group are having more than five members in a family.

Majority of **income** were between 5000 – 10000 (40%) , 2000 – 5000 (30%) and >10000 (30%) in both experimental and control group.

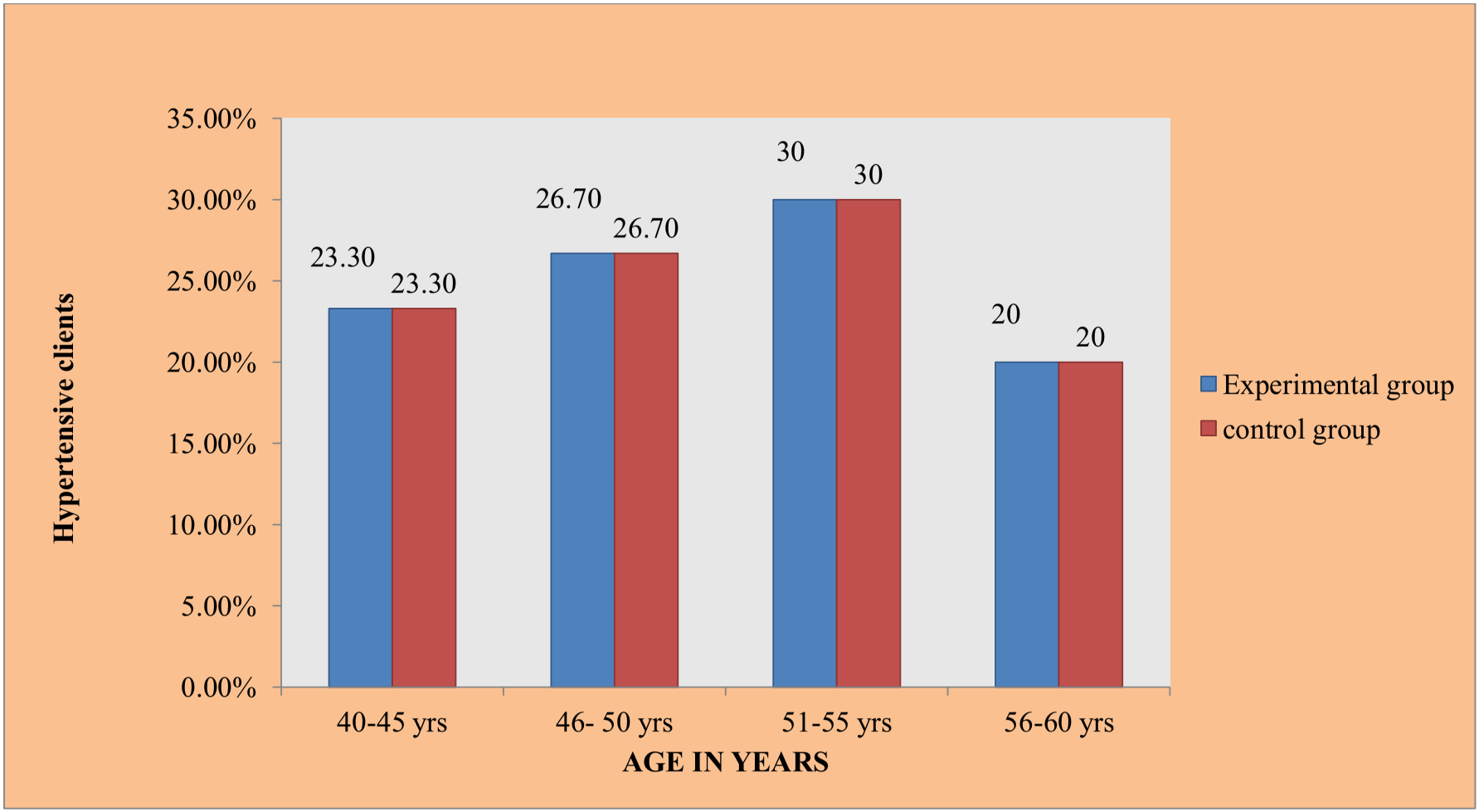


Fig 4.1: Age wise distribution of hypertensive clients in both experimental and control group

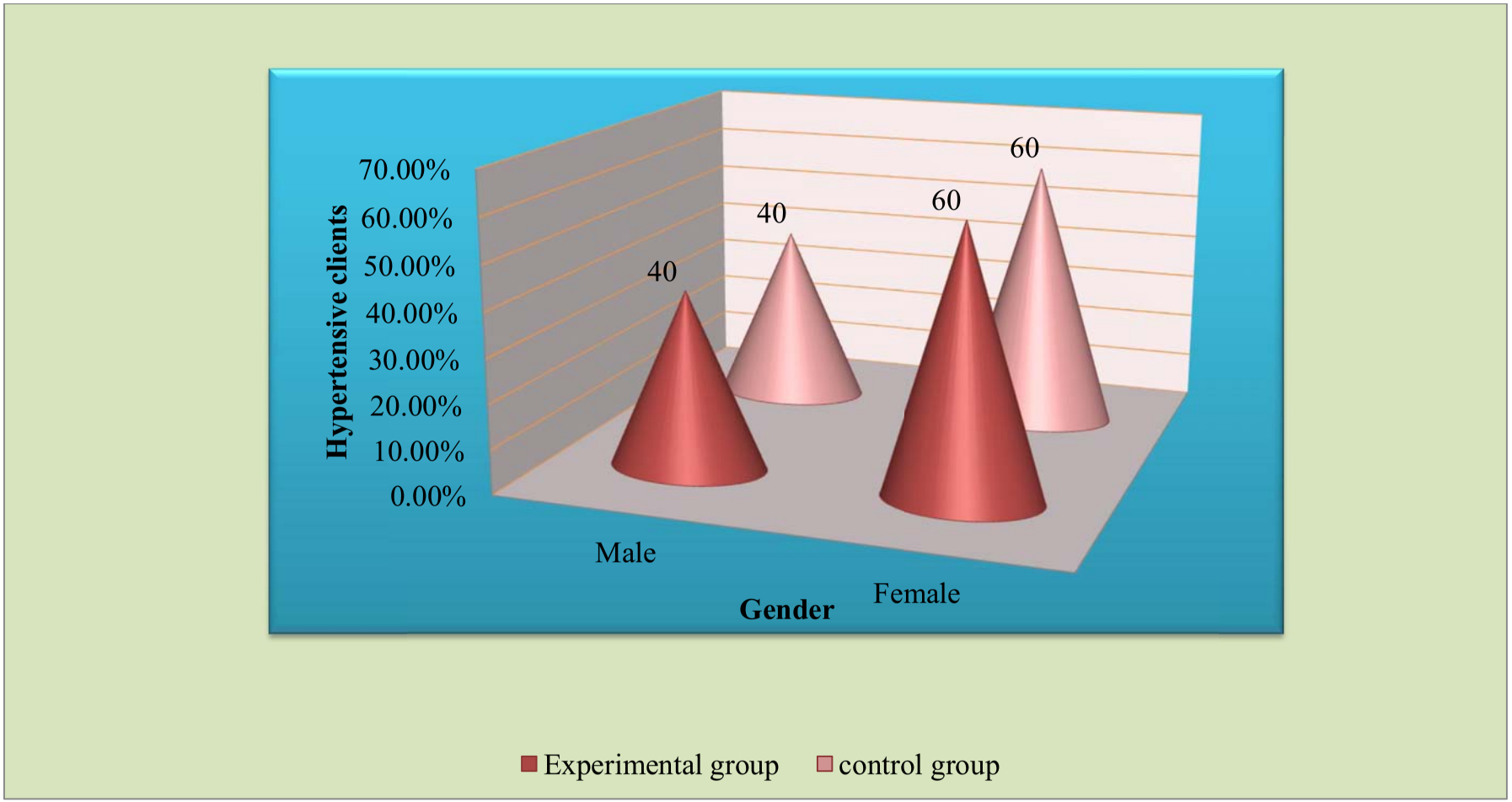


Fig 4.2: Gender wise distribution of hypertensive clients in both experimental and control group.

Fig 4.3: Religion wise distribution of hypertensive clients in both experimental and control group

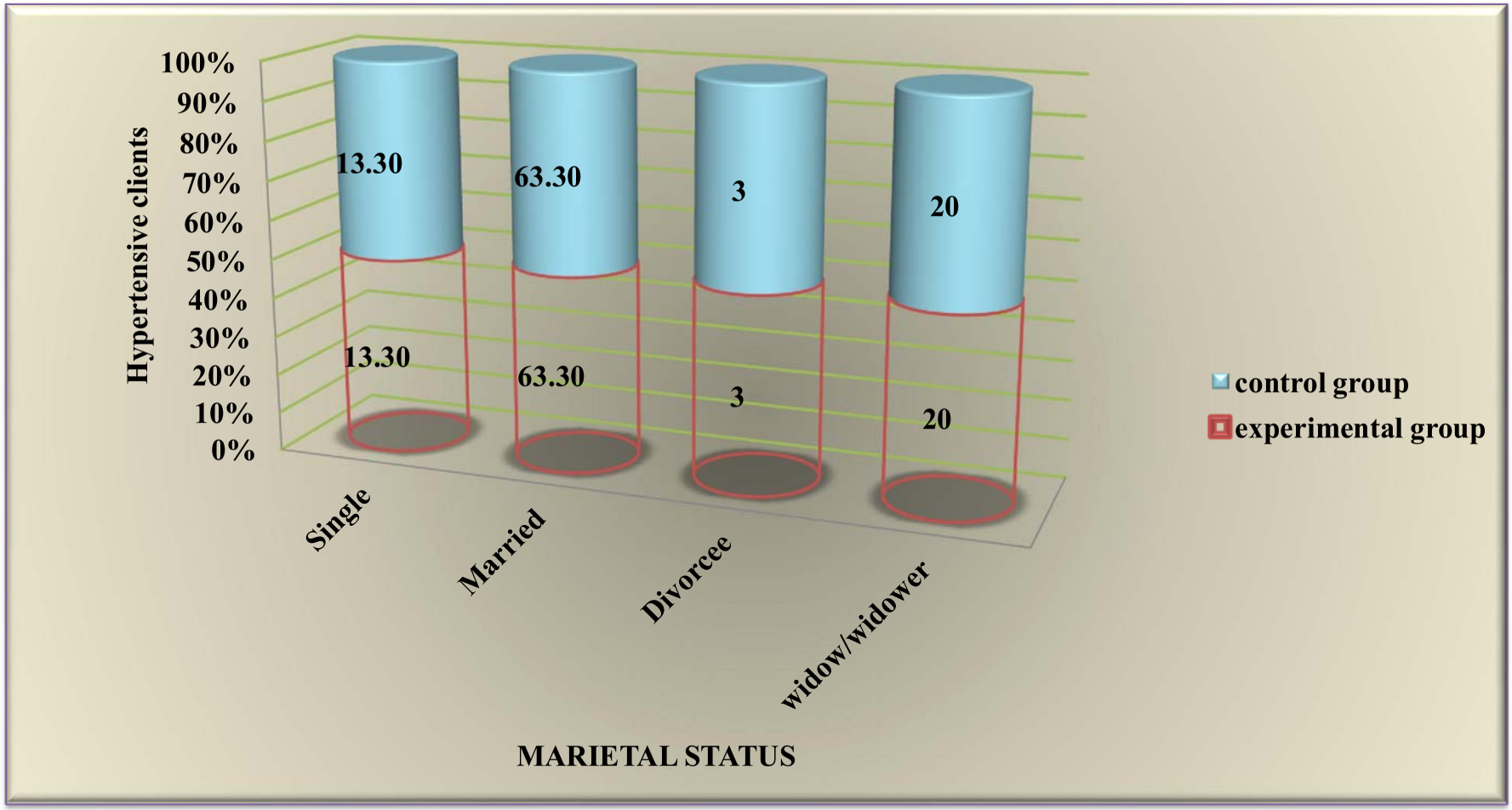
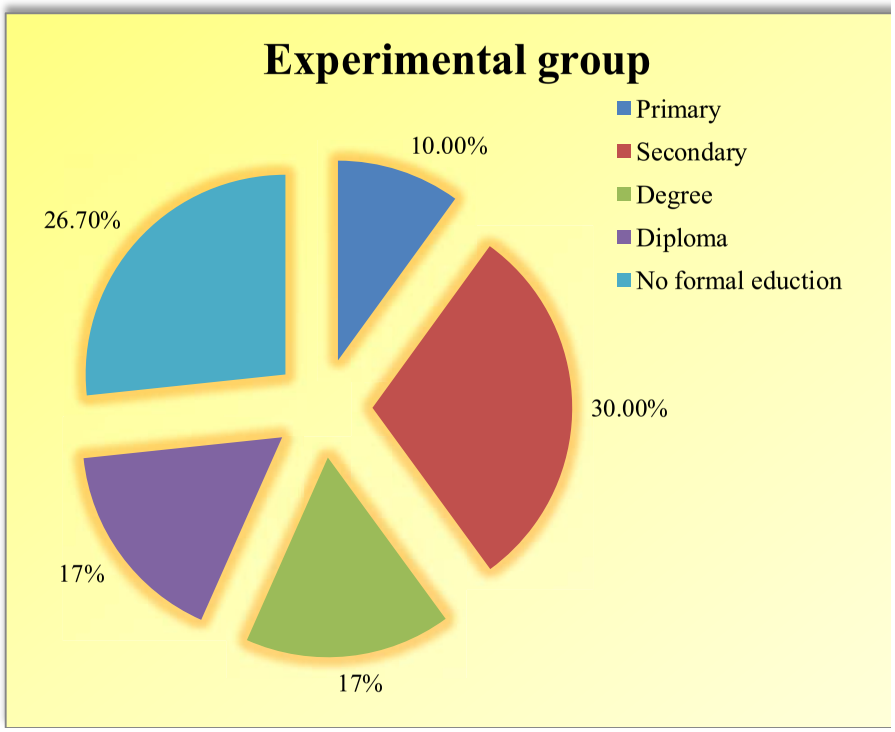


Fig 4.4: Marital status wise distribution of hypertensive clients in both experimental and control group



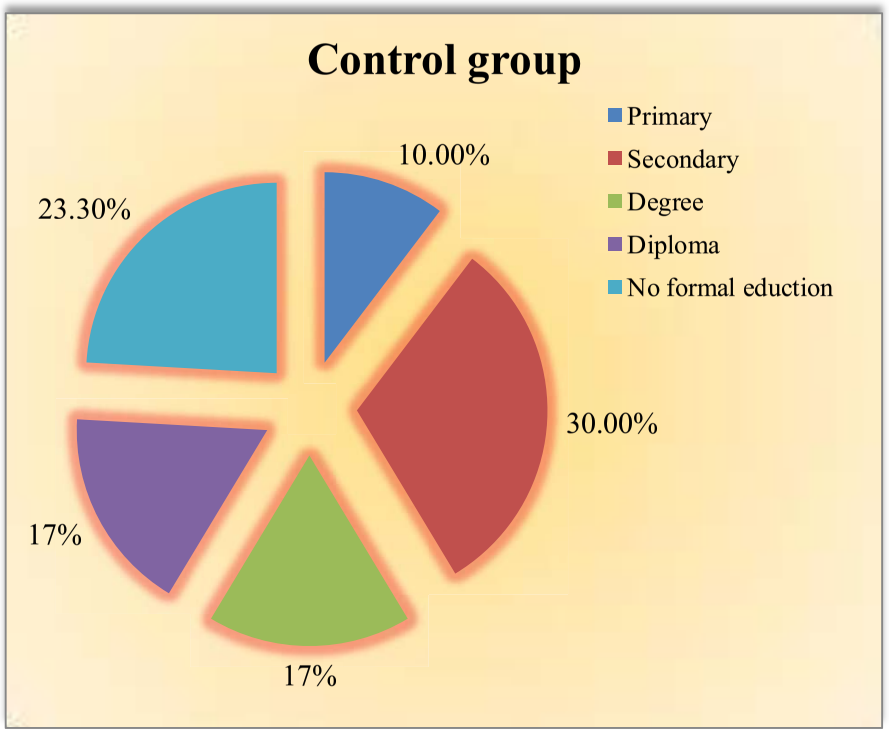


Fig 4.5: Education status wise distribution of hypertensive clients in both experimental and control group

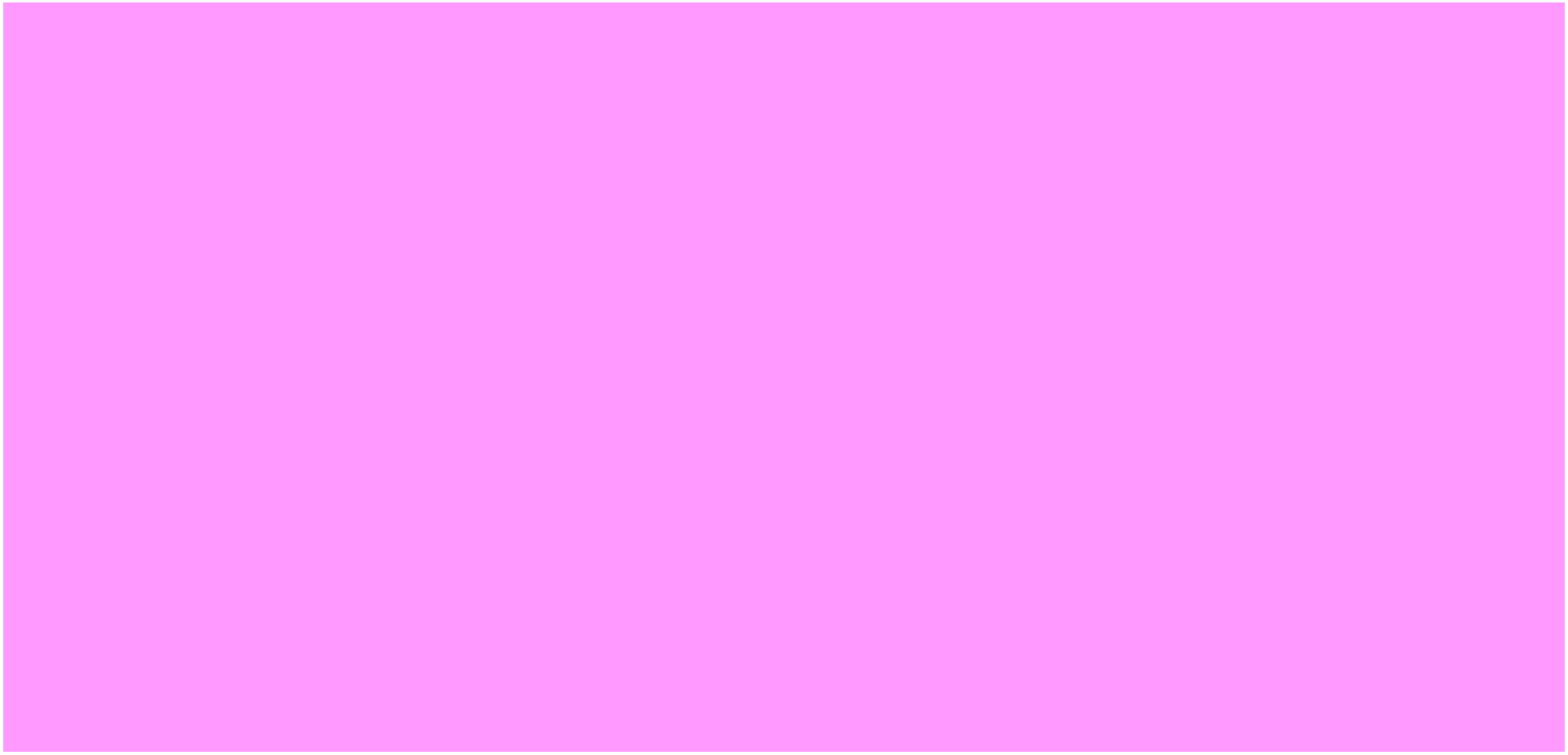


Fig 4.6: Occupation wise distribution of hypertensive clients in experimental group and control group.

Fig 4.7: Members in a family wise distribution of hypertensive clients in experimental and control group

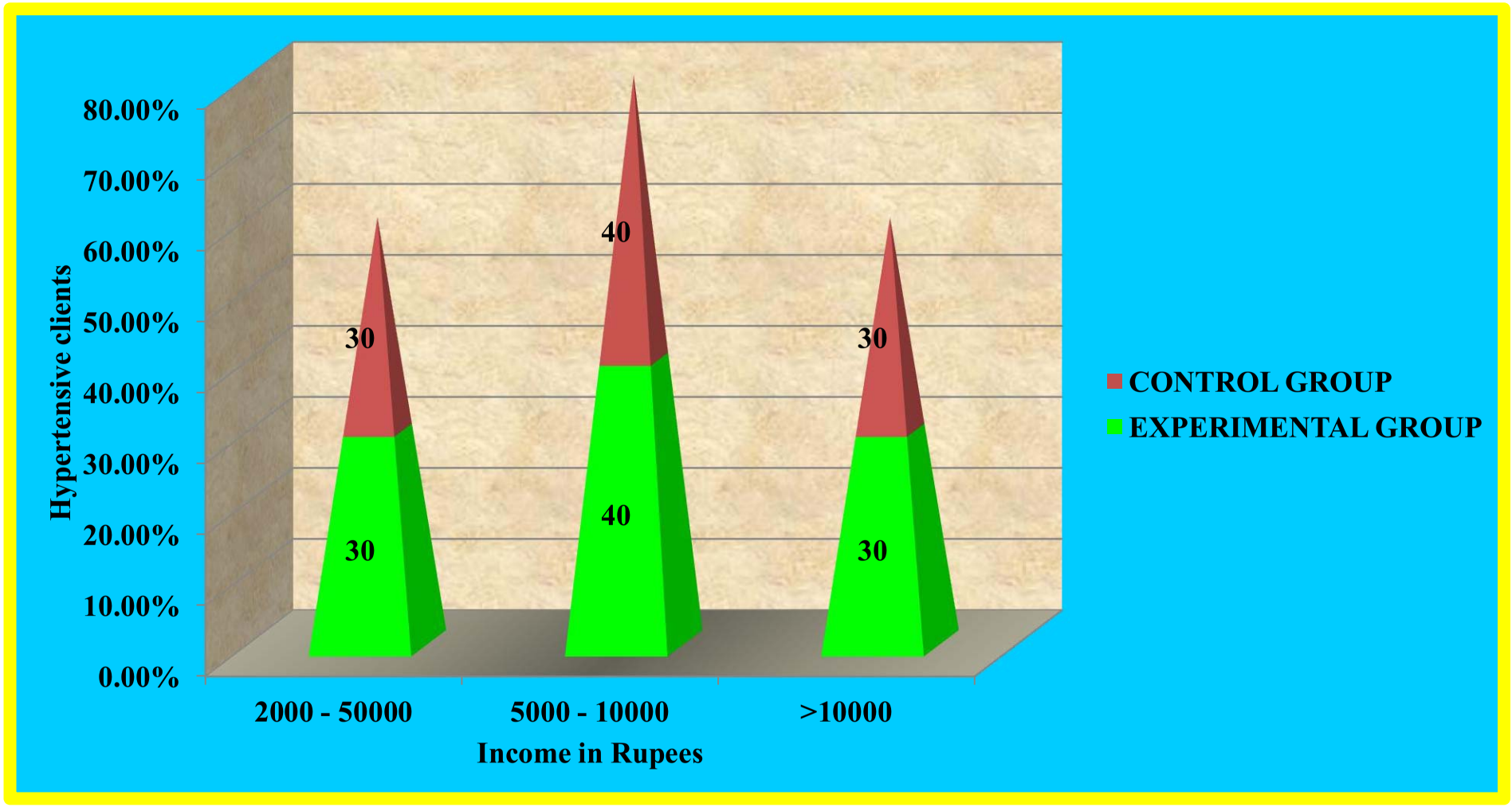


Fig 4.8: Income wise distribution of hypertensive clients in both experimental and control group

Table 3: Pre test distribution of clinical variable (information related to hypertension) of hypertensive clients

Demographic variable		Group				Chi-square test
		Experimental group		Control group		
		frequency	In %	frequency	In %	
Family history of hypertension	yes	19	63.3	12	40	$\chi2=3.2$ p=0.07
	no	11	36.7	18	60	
Hypertension diagnosed	< 1 year	8	26.7	12	40	$\chi2=2.4$ p=0.48
	1-3 years	15	50	12	40	
	4-5 years	6	20	6	20	
	>5 years	1	3.3	0	0	
Any change in diet	yes	21	70	23	76.7	$\chi2=0.3$ p=0.5
	no	9	30	7	23.3	
Adherence to dietary modification	always	4	13.3	6	20	$\chi2=2.8$ p=0.4
	sometimes	7	23.3	10	33.3	
	rarely	10	33.3	10	33.3	
	occasionally	9	30	4	13.3	
Medication taken	Yes	24	80	13	83.3	$\chi2=0.1$ p=0.7
	no	6	20	17	16.7	
Duration of medication taken	< 1 year	3	12.5	8	32	$\chi2=3.9$ p=0.26
	1-3 years	15	62.5	11	44	
	4-5 years	5	20.8	6	24	
	>5 years	1	4.2	0	0	
Regular	Yes	19	63.3	20	66.7	$\chi2=0.07$ p=0.7
	no	11	36.7%	10	33.3	

Table 3 shows that the distribution related to hypertension among subjects those who are participated in this study.

There is no statistical significant clinical variation between the experimental and control group.

The above table discuss that the majority of subjects 63.3%have a **family history of hypertension** in the experimental group where as 60% of clients does not have a family history of hypertension in control group. Clients **diagnosed with hypertension** within 1 – 3 years were 50% in experimental and 40% in control group.

There are 70% and 23% of clients **modified their diet** after diagnosed with hypertension in experimental and control group respectively. Majority 33.3% of

hypertensive clients rarely follow the dietary modification in both experimental and control group. About 80% and 83% of clients are taking **hypertensive medication** in both experimental and control group respectively.

There are 62.5% and 44% of clients are taking anti hypertensivemedication for 1-3 years in both experimental and control group respectively.Among the subjects, 63.3% and 66.7% have a **medication regularly** in both the experimental and control group.

Table 4: Pre test distribution of life style factors of hypertensive clients

Demographic variable		Group				Chi-square test
		Experimental group		Control group		
		frequency	In %	frequency	In %	
Excercise	yes	13	43.3	17	56.7	$\chi2$=1.06 p=o.3
	no	17	56.7	13	43.3	
Duration of excercise	20 min	4	30.8	12	52.2	**$\chi2$=6.1 p=0.04** *
	20 – 40 min	8	61.5	4	30.8	
	40 – 60 min	1	7.7	0	0	
Frequency of exercise per week	daily	4	30.8	6	37.5	$\chi2$=3.4 p=0.17
	Once in a day	8	61.5	5	31.3	
	Twice a day	1	7.7	5	31.3	
Bad habits	alcohol	1	3.3	0	0	$\chi2$=2.7 p=0.7
	smoking	5	16.7	5	16.7	
	Tobacco chewing	4	13.3	4	13.3	
	none	14	46.7	18	60	
	Alcohol and smoking	1	3.3	1	3.3	
	Alcohol and tobacco	5	16.7	2	6.7	
Duration of watching T.V	½ - 1 hour	2	6.7	0	0	$\chi2$=6.7 p=0.08
	1 – 2 hours	4	13.3	0	0	
	2 – 3 hours	8	26.7	11	36.7	
	>3 hours	16	53.3	19	63.3	

* significant at P≤0.05
** highly significant at P≤0.01
*** very high significant at P≤0.001

There is a statistical significant variation in duration of exercise between the experimental and control group (P≤0.04 with CI at 95%)

Table 4 reveals that majority 56.7% of clients are not doing any exercise in the experimental group whereas 56.7% of clients are doing exercise in control group.

According to the **duration of exercise**, the majority of subjects 61.5% were practicing exercise for 20-40 minutes per day in the experimental group and 75% were practicing exercise only for 20 minutes per day in the control group. The clients who were in experimental group majority 61.5% are doing exercise once in a day whereas in control group, 37.5% of clients are doing exercise daily. There are 46.7% and 60% of clients are not having any bad habits in both experimental and control group whereas 16.7% of clients having the habit of smoking and alcohol consumption in experimental group.About 53.3% of clients are having the hobby of watching T.V for more than three hours.

Table 5: Pre test distribution of dietary factors of hypertensive clients

Demographic variable		Group				Chi-square test
		Experimental group		Control group		
		frequency	In %	frequency	In %	
Diet pattern	vegetarian	6	20	7	23.3	$\chi2=0.1$ p=0.9
	Non vegetarian	3	10	3	10	
	Mixed	21	70	20	66.7	
Duration of non vegetarian taken	daily	5	20.8	3	13	$\chi2=2.4$ p=0.48
	Alternate day	4	16.7	4	17.4	
	Once a week	14	58.3	12	52.2	
	Once a month	1	4.2	4	17.4	
Salty foods	pickle	0	0	5	16.7	**$\chi2=12.5$ p=0.01 ***
	appalam	10	33.3	10	33.3	
	dryfish	5	16.7	4	13.3	
	all	3	10	0	0	
	Pickle and appalam	4	13.3	0	0	
	Appalam and dryfish	8	26.7	11	36.7	
Tea	yes	28	93.3	29	96.7	$\chi2=0.3$ p=0.5
	no	2	6.7	1	3.3	
Duration of tea intake	Once a day	4	14.3	3	10.3	$\chi2=0.8$ p=0.83
	Twice a day	10	35.7	13	44.8	
	Thrice a day	9	32.1	7	24.1	
	>thrice a day	5	17.9	6	20.7	
coffee	Yes	12	40	13	43.3	$\chi2=0.06$ p=0.7
	no	18	60	17	56.7	
Duration of coffee intake	Once a day	11	91.7	12	92.3	$\chi2=0.03$ p=0.9
	Twice a day	1	8.3	1	7.7	
oil	Groundnut oil	11	36.7	6	20	$\chi2=0.21$ p=0.1
	Coconut oil	4	13.3	2	6.7	
	Sunflower oil	11	36.7	11	36.7	
	Groundnut and sunflower oil	0	0	9	30	
	others	4	13.3	2	6.7	

* significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 5 shows that the majority 70% of subjects follow a **mixed diet** (both vegetarian and non vegetarian) in the experimental group and 66.7% in the control group.

Among the subjects, majority 58.3% are taking non vegetarian once in a week in the experimental group and 52.2% in the control group.

Among salty foods, majority 33.3% of clients take appalam in both experimental and control group .

The higher proportion of 93.3% and 96.7% are interested to have tea, twice a day (35.7% and 44.8%) in both experimental and control group respectively.

About 60% and 56.7% of clients are not taking coffee in both experimental and control group. Out of 40% who drinks coffee (91.7% and 92.3%) drinks once a day.

On the type of **oil consumption**, the more subjects consume both groundnut oil and sunflower oil (36.7%) in the experimental group and 36.7% consumes only sunflower oil in the control group.

Table 6: Distribution of Emotional factors of hypertensive clients

Demographic variable		Group				Chi-square test
		Experimental group		Control group		
		frequency	In %	frequency	In %	
Easily upset	yes	15	50%	18	60%	$\chi2=0.6$ p=o.4
	no	5	50%	12	40%	
Difficulty in sleeping	often	9	30.0%	12	40%	$\chi2=3.4$ p=0.3
	sometimes	10	33.3%	10	33.3%	
	Rarely	8	26.7%	8	26.7%	
	Not at all	3	63.3%	0	0%	
Relieves the stress	Watching t.v	19	23.3%	20	66.7%	$\chi2=2.09$ p=0.5
	Listening music	7	6.7%	8	26.7%	
	Reading books	2	6.7%	2	6.7%	
	others	2	46.7%	0	0%	

* significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 5 shows that the emotional factors of hypertension among subjects in both experimental and control group

The above table reveals that half of the subjects (50%) are **easily upset**and (50%) are not easily upset in both experimental and control group.

Among subjects, 33.3% are having difficulty in sleeping sometimes at night in both experimental group and control group.

For **measures to relieve stress**, the most of the subjects 63.3% choose watching T.V to relieve stress in experimental group and 66.7% in the control group.

SECTION B

Assess the pretest and post test blood pressure level among hypertensive client in the experimental group.

Table 7: pre test and post test level of blood pressure among hypertensive clients in the experimental group

S.no	Blood pressure	N	Mean	S.D	Student's paird 't' test
1.	Pre systole	30	148	8.47	**t = 10.78 DF= 29 p = 0.001 *** **
	post systole	30	137.83	8.78	
2.	pre diastole	30	89	8.84	**t = 10.56 DF= 29 p = 0.001 *** **
	Post diastole	30	78.33	7.9	

* significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 7 assess the pretest and post test systolic and diastolic blood pressure level among hypertensive client in experimental group.

In the above table, on an average, the pretest systolic blood pressure level is 148 and the post test systolic blood pressure is 137.83. The difference is 10.17 which is considered as large difference value. So it is statistically significant (P≤0.001) in student's paired 't' test.

Regarding the diastolic blood pressure, on an average, the pretest level is 89 and the post test level is 78.33. The difference is 10.67 which is considered as large difference value. So it is statistically significant (P≤0.001) in student's paired 't' test.

SECTION C

Assess the pretest and post test blood pressure level among hypertensive client in the control group.

Table 8: pre test and post test level blood pressure among hypertensive clients in the control group

S.no	Blood pressure	N	Mean	S.D	Student's paird 't' test
1.	Pre systole	30	148.33	7.47	t = 1.44 DF= 29 p = 0.16
	Postsystole	30	147	6.51	
2.	pre diastole	30	89.67	6.15	**t = 4.22** **DF= 29** **p = 0.02** *****
	Post diastole	30	87.33	6.40	

* significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Tables 8 assess the pretest and post test systolic and diastolic blood pressure level among hypertensive client in control group.

In the above table, on an average, the pretest systolic blood pressure level is 148.33 and the post test systolic blood pressure is 89.67. The difference is 1.33 which is considered as small difference value. So it is not statistically significant (P>0.05) in student's paired 't' test.

Regarding the diastolic blood pressure, on an average, the pretest level is 89.67 and the post test level is 87.33. The difference is 2.34 which is considered as large difference value. So it is statistically significant (P≤0.05) in student's paired 't' test.

SECTION D

Comparison of pretest and post test blood pressure among hypertensive clients in experimental and control group

Table 9: Compare the pre test and post test blood pressure level among hypertensive clients in experimental and control group

Blood pressure	Group	N	Mean	S.D	Student's paird 't' test
Pre systolic	Experimental	30	148	8.47	t = -0.16 DF= 58 p = 0.87
	control	30	148.33	7.47	
Pre diastolic	Experimental	30	89	8.84	t = -0.34 DF= 58 p = 0.74
	control	30	89.67	6.15	
Post systolic	Experimental	30	137.83	8.78	**t = -4.59 DF= 58 p = 0.001 *** **
	control	30	147	6.51	
Post diastolic	Experimental	30	78.33	7.92	**t = -4.84 DF= 58 p = 0.001 *** **
	control	30	87.33	6.40	

* significant at P≤0.05 ** highly significant at P≤0.01 *** very high significant at P≤0.001

Table 9 shows the comparison of overall pretest and posttest in both the experimental and the control group.

Considering pretest

On SBP, experiment subjects are having148 as a mean blood pressure and control subjects are having 148.33 as a mean blood pressure. Difference is 0.33 score. The difference betweenexperiment and control SBP value is small and it is not statistically significant.

On DBP, experiment subjects arehaving89 as a mean blood pressure and control subjectsare having 89.67 as a mean blood pressure. Difference is 0.67 score.

The difference between experiment and control DBP value is small and it is not statistically significant.

Considering post test

On SBP, experiment subjects arehaving137.83 as a mean blood pressure and control subjectsare having 147as a mean blood pressure. Difference is 10.83 score. The difference between experiment and control SBP value is large and it is statistically significant ($p \leq 0.001$)

On DBP, experiment subjects arehaving78.33 as a mean blood pressure and control subjectsare having 87.33 as a mean blood pressure. Difference is 9 score. The difference between experiment and control DBP value is large and it is statistically significant ($p \leq 0.001$)

Table 10: compare the blood pressure level among hypertensive clients in both experimental and control group

	N	Pre test Mean ± S.D		Post test Mean ± S.D		Student's paired 't' test
		systole	diastole	systole	diastole	
Experimental group	30	148 ± 8.47	89 ± 8.85	137.83 ± 8.78	78.33 ± 7.92	**t = 10.78 DF= 29 p = 0.001 *****
Control group	30	148.33 ± 7.47	89.67 ± 6.15	147 ± 6.51	87.33 ± 6.40	t = 1.44 DF= 29 p = 0.16

* significant at P≤0.05 ** highly significant at P≤0.01 *** very high significant at P≤0.001

Table 10 shows the comparison of overall experiment and control group hypertension.Differences between experiment and control group of hypertensive clientswas analyzed using independent t-test. The result showed that the difference value is large. So, there is a statistical difference between experimental and control group.

SECTION E

Identify the effectiveness of Amla juice among hypertensive clients

Table 11: frequency and percentage distribution ofpost test blood pressure reduction score among hypertensive clients in experimental and control group

BLOOD PRESSURE	Blood pressure score	Experimental group		Control group		Chi-square test
		frequency	In %	frequency	In %	
SBP	no reduction	1	3.3	24	80	χ^2=38.4 p=0.001 ***
	<5	7	23.3	0	0	
	6-10	17	56.7	20	20	
	>15	5	16.7	0	0	
DBP	no reduction	2	6.7	22	73.3	χ^2=30.5 p=0.001 ***
	<5	4	13.3	0	0	
	6-10	18	60	8	26.7	
	>15	6	20	0	0	

* Significant at P≤0.05 ** highly significant at P≤0.01 *** very high significant at P≤0.001

Considering SBP Around 56.7% of clients have 6-10 reduction, 23.3% of them have <5 reduction, 16.7% of them have >15 reduction and 3.3% of them are have no reduction of SBP where as in control goup, 80% of clients have no reduction, and 20% of them having 6-10 reduction of SBP. So there is a significant difference between experiment and control. Statistical significance was calculated using chi square test (p≤ 0.001with CI at 95%)

Considering DBP Around 60% of clients have 6-10 reduction, 13.3% of them have <5 reduction, 20% of them have >15 reduction and 6.7% of them are have no reduction of DBP. Among Control, 73.3% of clients have no reduction, and 26.7% of them have 6-10 reduction of DBP. There is a statistically significant difference between experiment and control. Statistical significance was calculated using chi-square test (p≤ 0.001with CI at 95%)

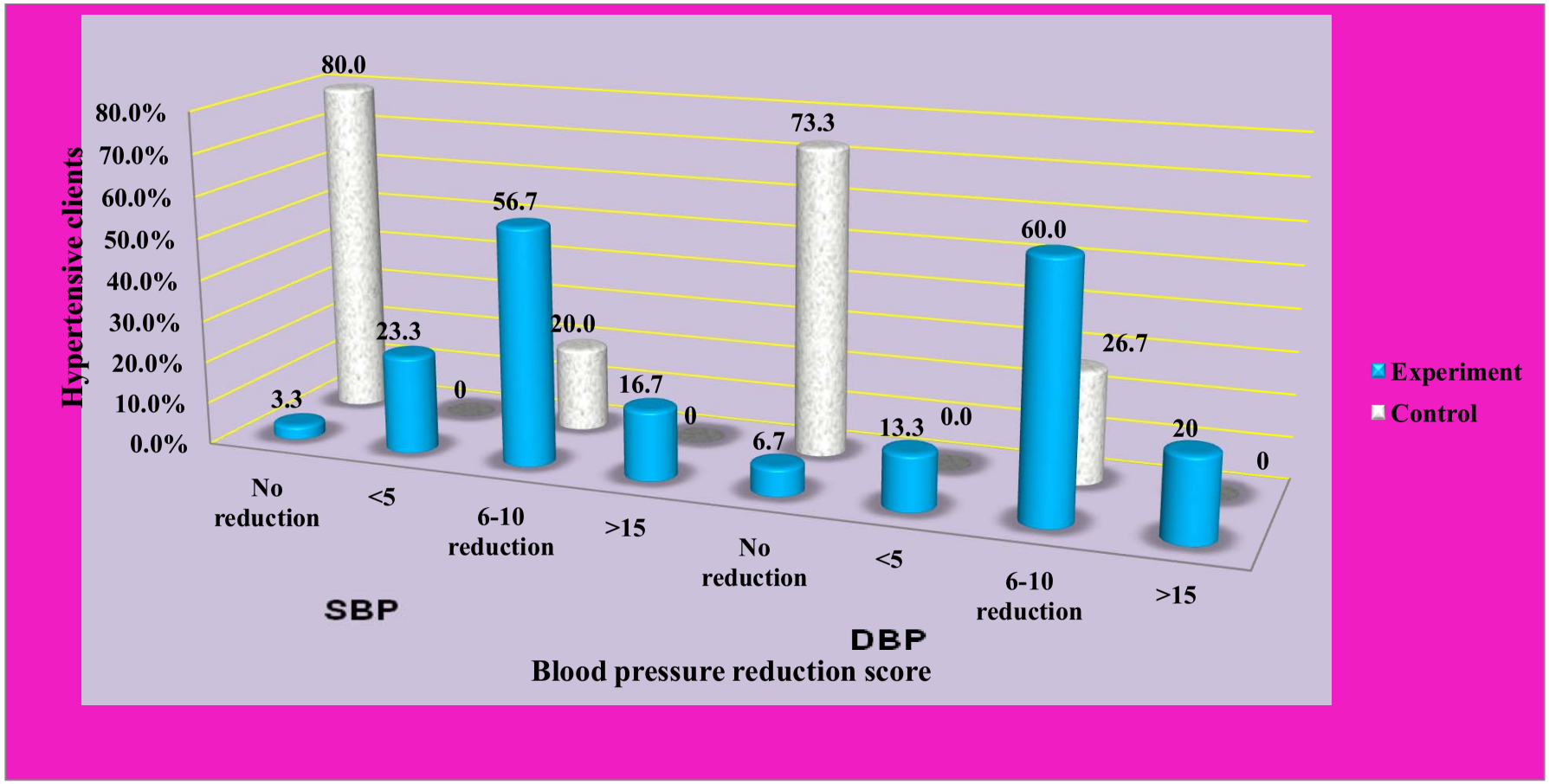


Fig 4.9: shows the post test level of systolic and diastolic blood pressure reduction of hypertensive clients in experimental and control group.

Table 12: Effectiveness of amla juice

Group	BP	Pre and post test	Mean score	Mean hypertension Difference with 95% Confidence interval	Percentage hypertension Difference with 95% Confidence interval
Experiment	SBP	Pretest	148	10.17(7.07–13.27)	**6.8%(4.7% –8.9%)**
		Posttest	137.83		
	DBP	Pretest	89	10.67 (7.45– 13.89)	**11.9%(8.4% –15.6%)**
		Posttest	78.33		
Control	SBP	Pretest	148.33	1.33 (-1.39– 4.05)	**0.89%(-0.9% – 2.7%)**
		Posttest	147		
	DBP	Pretest	89.67	2.34(0.1 – 4.58)	**2.6%(0.1% – 5.1%)**
		Posttest	87.33		

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 12shows the effectiveness of the study.

In experimental group, after consumption of amla juice, the SBP is reduced by 6.8% andDBP is reduced by 11.9% respectively. This shows the effectiveness of amla juice in lowering diastolic blood pressure than systolic blood pressure.

In control group, the SBP is reduced by 0.89% and DBP is reduced by 2.6% respectively.

Here, there is maximum reduction of blood pressure in experimental group than control group.

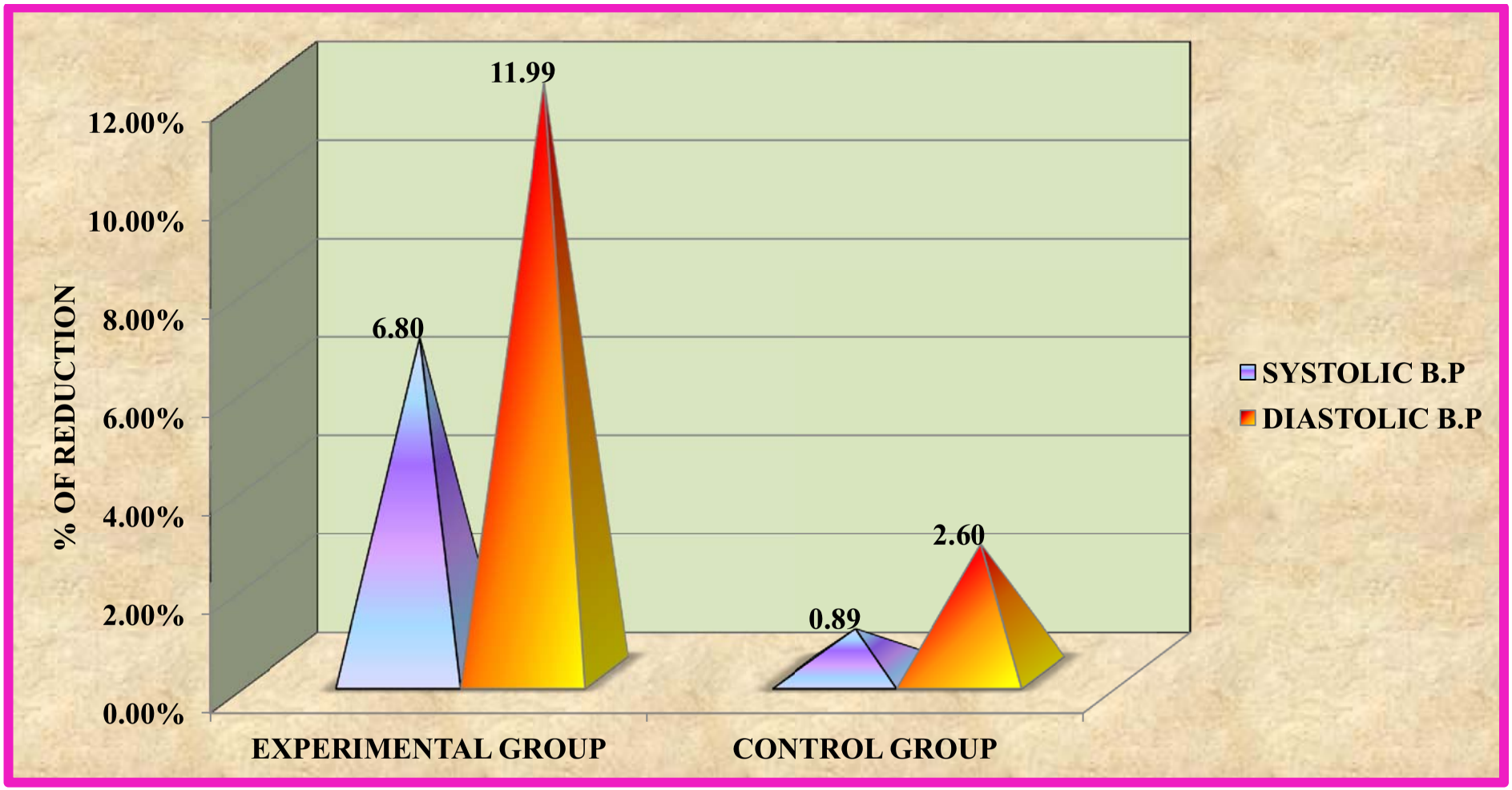


Fig 4.10: Effectiveness of the amla juice in the reduction of blood pressure in experimental and control group

SECTION F

Table 13: Associate the selected demographic variable with the reduction of systolic blood pressure (SBP) in the experimental group.

Demographic variable		Level of SBP				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	In %	
Age	40-45 yrs	0	0	7	0	7	23.3	**χ^2=13.2 p=0.04 ***
	46- 50 yrs	0	1	4	3	8	26.7	
	51-55 yrs	1	3	4	1	9	30	
	56-60 yrs	0	3	2	1	6	20	
Gender	Male	0	4	7	1	12	40	χ^2=2.37 p=0.5
	female	1	3	10	4	18	60	
Religion	Hindu	1	4	9	2	16	53.3	χ^2=4.4 p=0.6
	Christian	0	3	4	1	8	26.7	
	muslim	0	0	4	2	6	20	
Marital status	single	0	1	2	1	4	13.3	χ^2=4.5 p=0.9
	married	1	3	12	3	19	63.3	
	divorce	0	0	1	0	1	3.3	
	widow/widower	0	3	2	1	6	20	
Educational status	Primary education	0	0	2	1	3	10	χ^2=6.19 p=0.9
	Secondary education	1	3	4	1	9	30	
	degree	0	1	4	0	5	16.7	
	diploma	0	1	3	1	5	16.7	
	No formal education	0	2	4	2	8	26.7	
occupation	Profession	0	0	2	0	2	6.7	χ^2=9.36 p=0.4
	bussiness	0	3	2	2	7	23.3	
	Daily wages	1	1	5	0	7	23.3	
	unemployed	0	3	8	3	14	46.7	
members	2	0	0	2	0	2	6.7	**χ^2=12.2 p=0.04 ***
	3	0	4	2	0	6	20	
	4	1	1	5	3	10	33.3	
	5 and above	0	2	8	2	12	40	
Income	2000 – 5000	0	2	5	2	9	30	χ^2=2.37 p=0.9
	5000 - 10000	1	3	7	1	12	40	
	>10000	0	2	5	2	9	30	

*significant at P≤0.05 ** highly significant at P≤0.01 *** very high significant at P≤0.001

Table 13 shows that there is a statistical significant association between the age of 51 – 55 yearsand the study participants those who have more than five members in a family with reduction of the systolic blood pressure (p≤ 0.04 with CI at 95%)

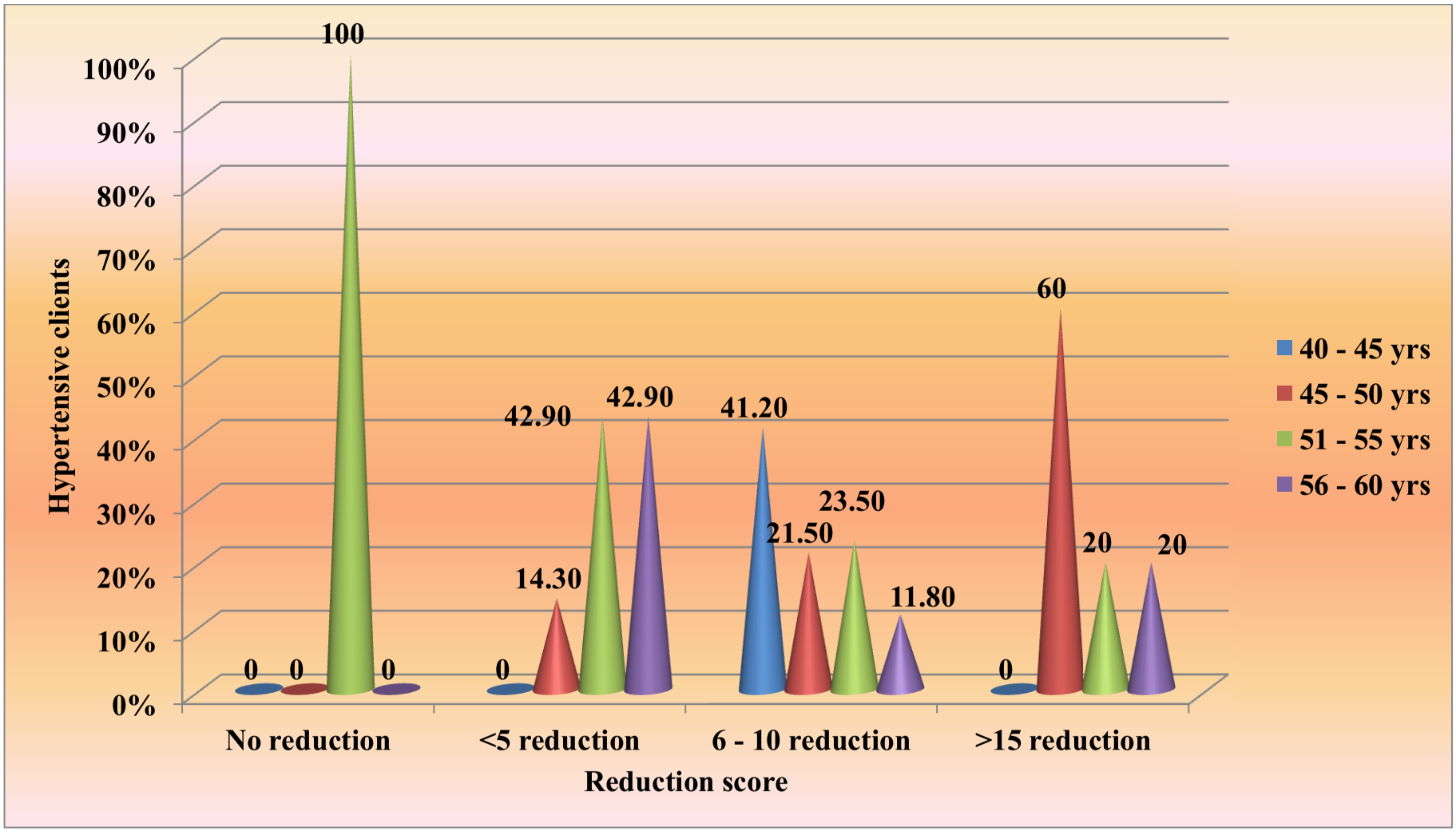


Fig 4.11: Association between the age of hypertensive clients with the reduction of systolic blood pressure

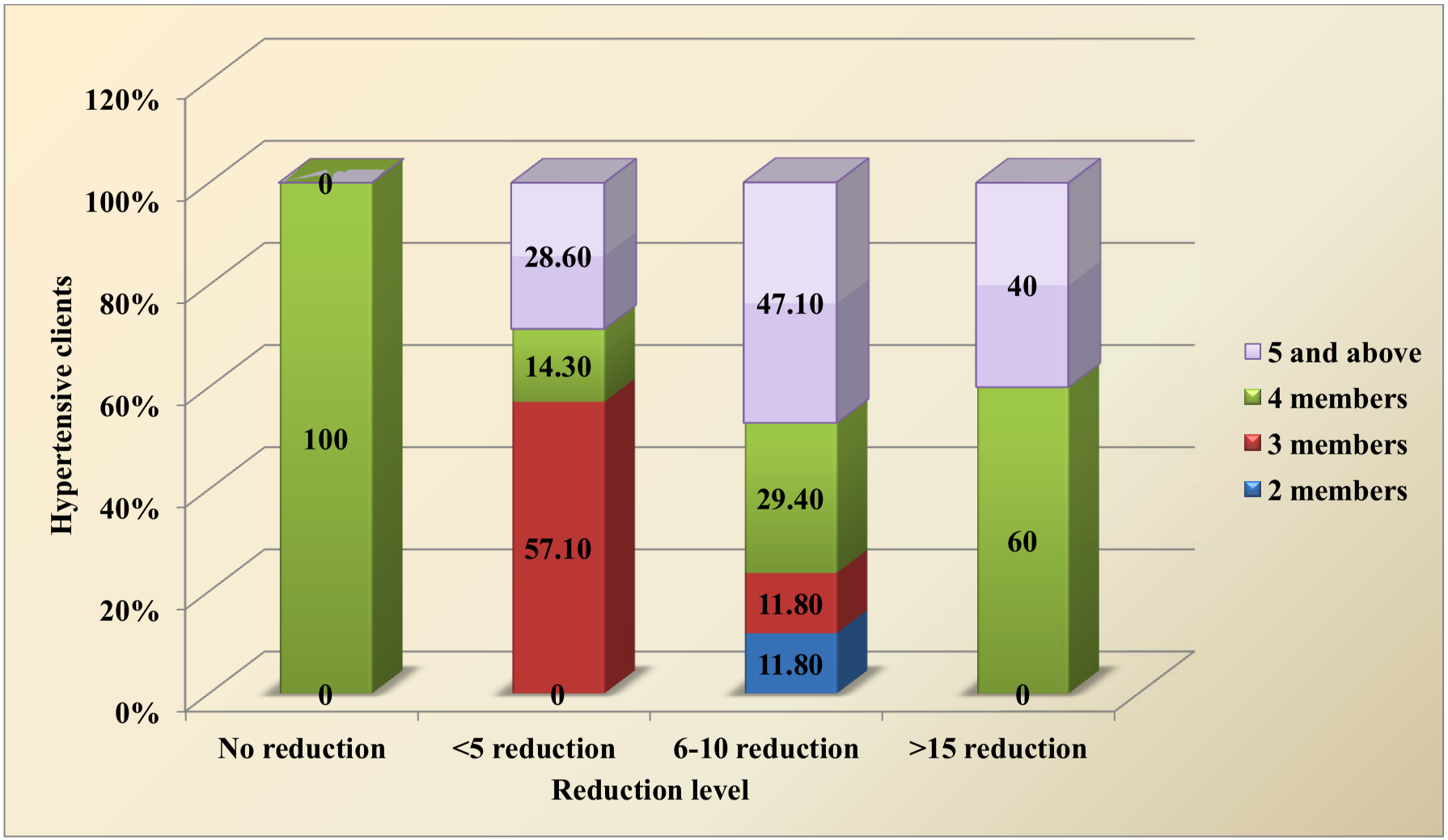


Fig 4.12: Association between the members in a family of hypertensive clients with the reduction of systolic blood pressure

Table 14: Associate the selected clinical variable (Hypertension related information) with the reduction of SBP in the experimental group.

Demographic variable		Level of SBP reduction				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	In %	
Family history of hypertension	yes	0	4	12	3	19	63.3	$\chi2=2.25$ p=0.52
	no	1	3	5	2	11	36.7	
Hypertension diagnosed	< 1 year	0	1	7	0	8	26.7	$\chi2=14.2$ p=0.12
	1-3 years	1	6	6	2	15	50	
	4-5 years	0	0	4	2	6	20	
	>5 years	0	0	0	1	1	3.3	
Any change in diet	yes	1	5	10	5	21	70	$\chi2=3.59$ p=0.31
	no	0	2	7	0	9	30	
Adherence to dietary modification	always	0	0	2	2	4	13.3	$\chi2=10.63$ p=0.3
	sometimes	0	1	4	2	7	23.3	
	rarely	1	4	4	1	10	33.3	
	occasionally	0	2	7	0	9	30	
Medication taken	Yes	1	6	12	5	24	80	$\chi2=2.58$ p=0.46
	no	0	1	5	0	6	20	
Duration of medication taken	< 1 year	0	0	3	0	3	12.5	$\chi2=11.52$ p=0.24
	1-3 years	1	6	6	2	15	62.5	
	4-5 years	0	0	3	2	5	20.8	
	>5 years	0	0	0	1	1	4.2	
Regular	Yes	1	6	8	4	19	63.3	$\chi2=4.63$ p=0.2
	no	0	1	9	1	11	36.7	

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 14 shows that there is no statistical significant association between the clinical variable of hypertension related information with the reduction of systolic blood pressure.

Table 15: Associate the selected clinical variable (life style factors)with the reduction of SBP in the experimental group.

Demographic variable		Level of SBP reduction				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	In %	
Excercise	yes	1	1	8	3	13	43.3	$\chi2$=4.38 p=o.2
	no	0	6	9	2	17	56.7	
Duration of excercise	20 min	0	0	2	2	4	30.8	**$\chi2$=6.1 p=0.04 ***
	20 – 40 min	1	0	6	1	8	61.5	
	40 – 60 min	0	1	0	0	1	7.7	
Frequency of excercise per week	daily	0	0	2	2	4	30.8	**$\chi2$=15.4 p=0.02 ***
	Once in a day	0	1	6	1	8	61.5	
	Twice a day	1	0	0	0	1	7.7	
Bad habits	alcohol	0	0	1	0	1	3.3	$\chi2$=12.2 p=0.7
	smoking	0	0	3	2	5	16.7	
	Tobacco chewing	0	2	1	1	4	13.3	
	none	1	2	9	2	14	46.7	
	Alcohol and smoking	0	1	0	0	1	3.3	
	Alcohol and tobacco	0	2	3	0	5	16.7	
Duration of watching T.V	½ - 1 hour	0	0	1	1	2	6.7	**$\chi2$=19.2 p=0.02 ***
	1 – 2 hours	0	4	0	0	4	13.3	
	2 – 3 hours	0	0	7	1	8	26.7	
	>3 hours	1	3	9	3	16	53.3	

*significant at P≤0.05 ** highly significant at P≤0.01 *** very high significant at P≤0.001

Table 15 shows that there is an statistical significant association between the life style factors for hypertension like those who exercise once a day(p≤ 0.04with CI at 95%) for 20-40 minutes(p≤ 0.02with CI at 95%) and watch T.V more than 3 hours(p≤ 0.02with CI at 95%) with reduction of the systolic blood pressure.

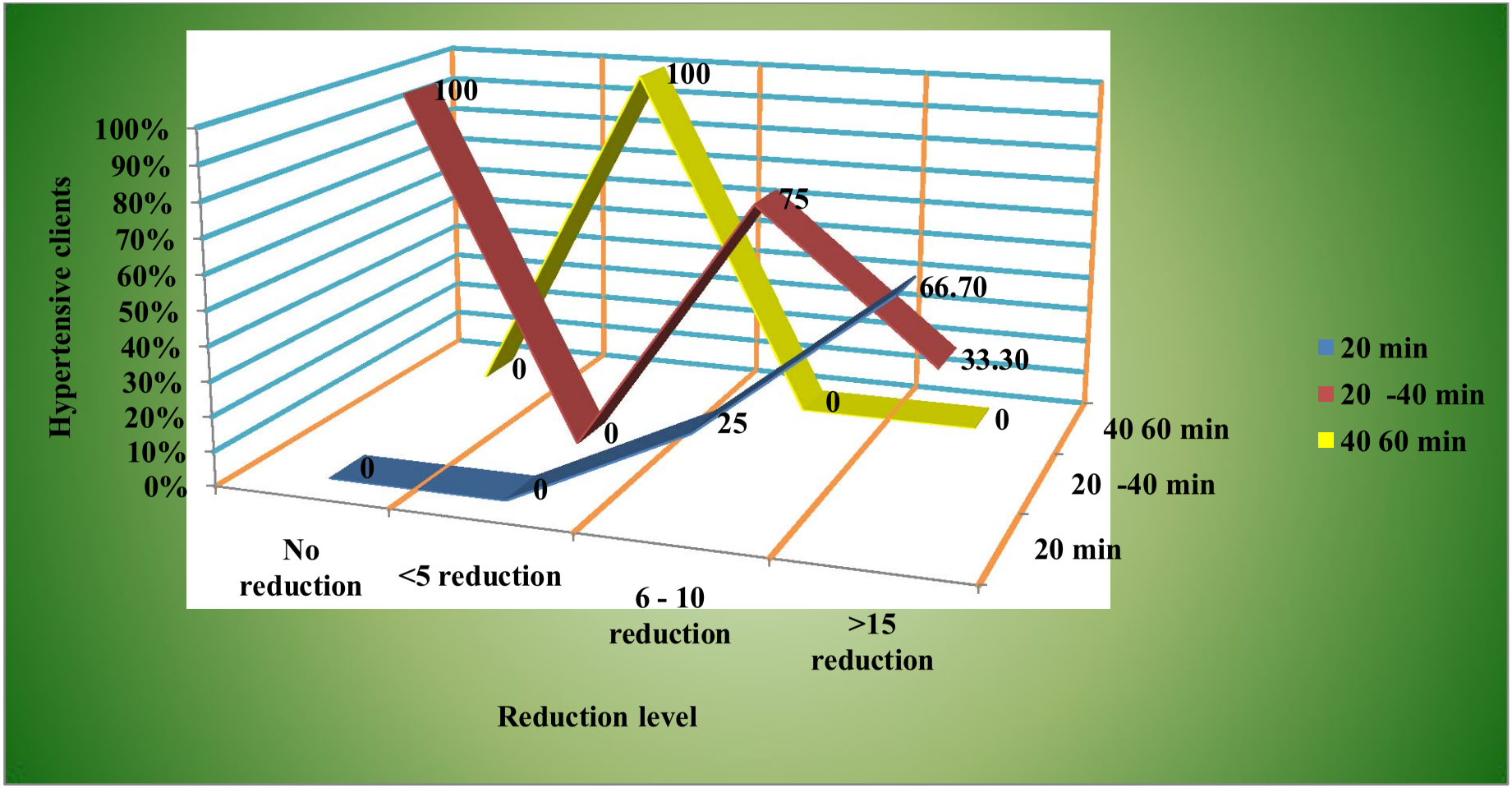


Fig 4.13: Association between the duration of exercise with the reduction of systolic blood pressure

Fig 4.14: Association between the frequency of exercise per week with the reduction of systolic blood pressure

Fig 4.15: Association between the duration of watching T.V with the reduction of systolic blood pressure

Table 16: Associate the selected clinical variable (Dietary factors) with the reduction of SBP in the experimental group.

Demographic variable		Level of SBP reduction				Total		Chi-square test
		No reduction	<5	6-10	>15	Frequency	In %	
Diet pattern	vegetarian	0	2	3	1	6	20	$\chi2=1.9$ p=0.9
	Non vegetarian	0	1	1	1	3	10	
	Mixed	1	4	13	3	21	70	
Duration of non vegetarian taken	daily	0	1	3	1	5	20.8	$\chi2=8.9$ p=0.5
	Alternate day	0	0	2	2	4	16.7	
	Once a week	1	3	9	1	14	58.3	
	Once a month	0	1	0	0	1	4.2	
Salty foods	pickle	0	2	6	2	10	33.3	$\chi2=6.9$ p=0.9
	dryfish	0	1	3	1	5	16.7	
	all	0	2	1	0	3	10	
	Pickle and appalam	0	1	2	1	4	13.3	
	Appalam and dryfish	1	1	5	1	8	26.7	
Tea	yes	1	7	16	4	28	93.3	$\chi2=2.2$ p=0.6
	no	0	0	1	1	2	6.7	
Duration of tea intake	Once a day	0	1	2	1	4	14.3	$\chi2=7.23$ p=0.61
	Twice a day	1	4	3	2	10	35.7	
	Thrice a day	0	1	7	1	9	32.1	
	>thrice a day	0	1	4	0	5	17.9	
coffee	Yes	1	3	5	3	12	40	$\chi2=3.15$ p=0.4
	no	0	4	12	2	18	60	
Duration of coffee intake	Once a day	1	3	5	2	11	91.7	$\chi2=3.27$ p=0.4
	Twice a day	0	0	0	1	1	8.3	
Oil	Groundnut oil	1	2	6	2	11	36.7	$\chi2=5.18$ p=0.8
	Coconut oil	0	2	1	1	4	13.3	
	Sunflower oil	0	2	8	1	11	36.7	
	others	1	0	2	1	4	13.3	

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 16shows that there is no statistical significant association between the dietary factors with the reduction of systolic blood pressure.

Table 17: Associate the selected demographic variable (Emotional factors) with the reduction of SBP in the experimental group.

Clinical variable		Level of SBP reduction				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	In %	
Easily upset	yes	0	4	8	3	15	50	$\chi 2=1.4$ p=0.7
	no	1	3	9	2	15	50	
Difficulty in sleeping	often	0	3	3	3	9	30	$\chi 2=7.3$ p=0.6
	sometimes	0	2	7	1	10	33.3	
	Rarely	1	1	5	1	8	26.7	
	Not at all	0	1	2	0	3	10	
Relieves the stress	Watching T.V	1	5	9	4	19	63.3	$\chi 2=5.96$ p=0.7
	Listening music	0	2	5	0	7	23.3	
	Reading books	0	0	1	1	2	6.7	
	others	0	0	2	0	2	6.7	

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 17 shows that there is no statistical significant association between the Emotional factors for hypertension with the reduction of systolic blood pressure.

Table 18: Association theselected demographic variables with the reduction of DBP in the Experiment group.

Demographic variable		Level of DBP				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	In %	
Age	40-45 yrs	1	0	3	3	7	23.3	**χ^2=10.34 p=0.05 ***
	46- 50 yrs	1	0	6	1	8	26.7	
	51-55 yrs	0	2	5	2	9	30	
	56-60 yrs	0	2	4	0	6	20	
Gender	Male	1	1	7	3	12	40	χ^2=0.79 p=0.87
	female	1	3	11	3	18	60	
Religion	Hindu	1	3	10	2	16	53.3	χ^2=3.25 p=0.78
	Christian	1	1	4	2	8	26.7	
	muslim	0	0	4	2	6	20	
Marital status	single	0	0	2	1	4	13.3	χ^2=9.03 p=0.44
	married	1	3	11	4	19	63.3	
	divorce	0	0	0	1	1	3.3	
	widow/widower	0	1	5	0	6	20	
Educational status	Primary education	0	0	1	2	3	10	**χ^2=16.89 p=0.02 ***
	Secondary education	0	3	5	1	9	30	
	degree	0	0	4	1	5	16.7	
	diploma	0	0	3	2	5	16.7	
	No formal education	2	1	5	0	8	26.7	
occupation	Profession	0	0	2	0	2	6.7	χ^2=2.86 p=0.97
	bussiness	0	1	4	2	7	23.3	
	Daily wages	1	1	4	1	7	23.3	
	unemployed	1	2	8	3	14	46.7	
members	2	0	0	2	0	2	6.7	χ^2=6.2 p=0.72
	3	0	2	3	1	6	20	
	4	1	2	5	2	10	33.3	
	5 and above	1	0	8	3	12	40	
Income	2000 – 5000	2	1	5	1	9	30	χ^2=8.45 p=0.21
	5000 - 10000	0	3	7	2	12	40	
	>10000	0	0	6	3	9	30	

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 18 shows that there is a statistical significant association between the age 51-55 years (p≤ 0.05with CI at 95%) and those who not attend the formal education (p≤ 0.05with CI at 95%) with the reduction of DBP**.**

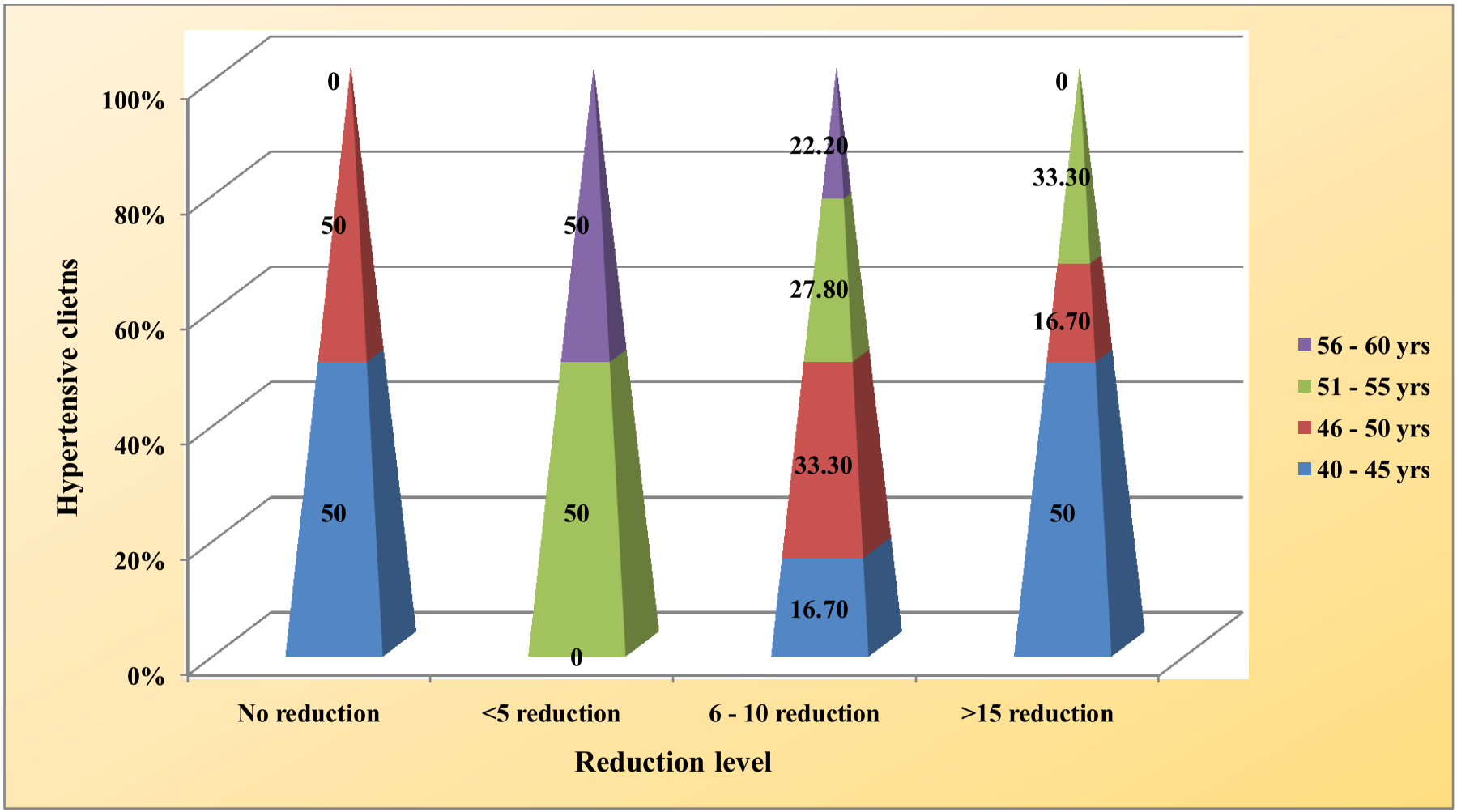


Fig 4.16: Association between the age of hypertensive clients with the reduction of diastolic blood pressure

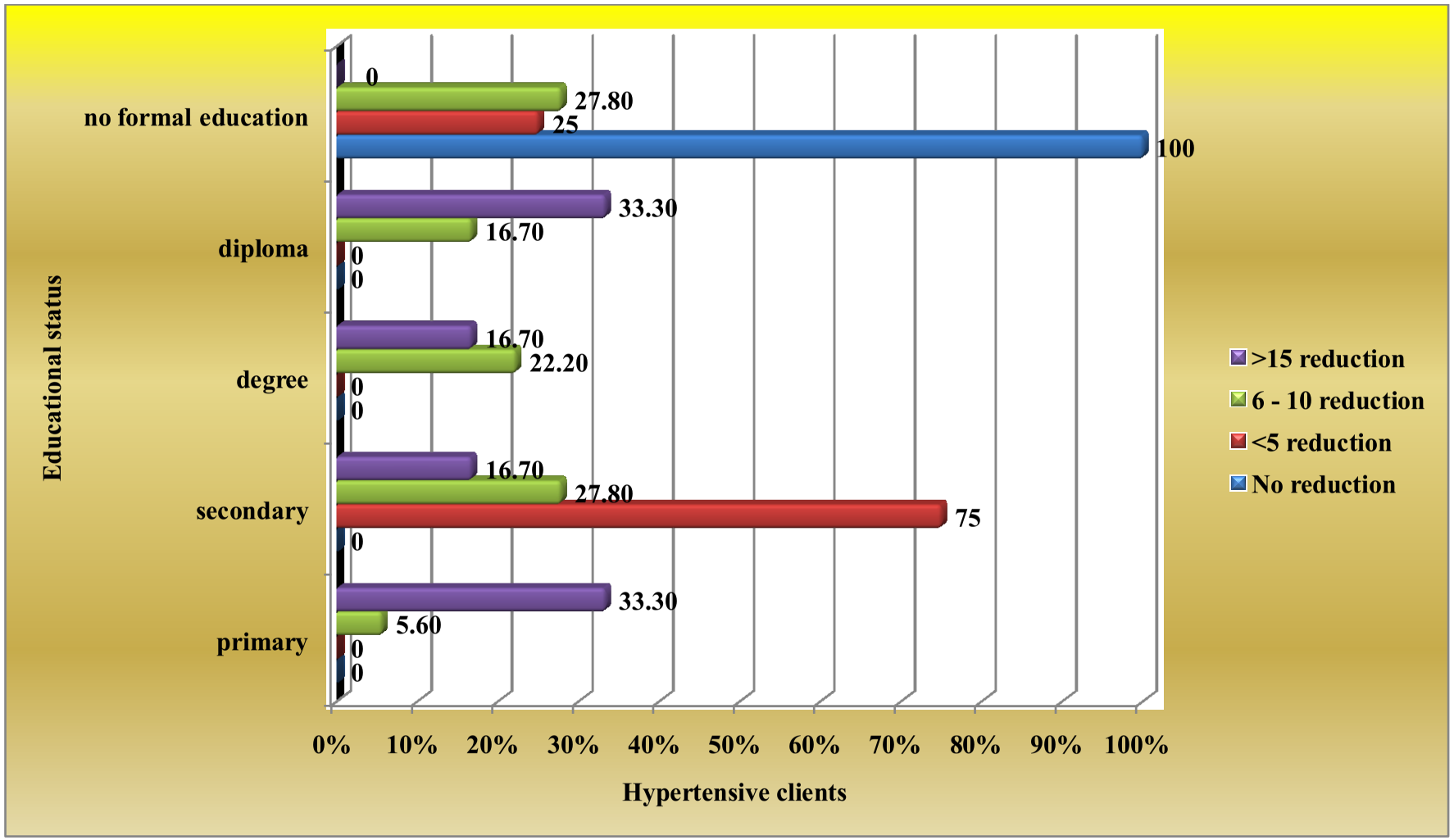


Fig 4.17: Association between the educational status of hypertensive clients and the reduction of diastolic blood pressure

Table 19: Associate the selected clinical variable (information related to hypertension) with the reduction of DBP in the experimental group.

Demographic variable		Level of DBP reduction				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	In %	
Family history of hypertension	yes	2	3	9	5	19	63.3	$\chi2=2.25$ p=0.52
	no	0	1	9	1	11	36.7	
Hypertension diagnosed	< 1 year	2	1	3	2	8	26.7	$\chi2=14.2$ p=0.12
	1-3 years	0	3	9	3	15	50	
	4-5 years	0	0	6	0	6	20	
	>5 years	0	0	0	1	1	3.3	
Any change in diet	yes	1	3	13	4	21	70	$\chi2=3.59$ p=0.31
	no	1	1	5	2	9	30	
Adherance to dietary modifiction	always	0	0	1	3	4	13.3	**$\chi2=18.04$ p=0.03 ***
	sometimes	0	0	7	0	7	23.3	
	rarely	1	3	6	0	10	33.3	
	occassionaly	1	1	4	3	9	30	
Medication taken	Yes	0	3	17	4	24	80	**$\chi2=11.08$ p=0.01 ****
	no	2	1	1	2	6	20	
Duration of medication taken	< 1 year	0	0	2	1	3	12.5	$\chi2=8.75$ p=0.19
	1-3 years	0	3	10	2	15	62.5	
	4-5 years	0	0	5	0	5	20.8	
	>5 years	0	0	0	1	1	4.2	
Regular	Yes	1	3	13	3	19	63.3	$\chi2=4.76$ p=0.19
	no	2	1	5	3	11	36.7	

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 19 shows that there is a statistical significant association between those who adhere to the dietary modification for hypertension (p≤ 0.03 with CI at 95%) and those who take medication for hypertension with the reduction of diastolic blood pressure.

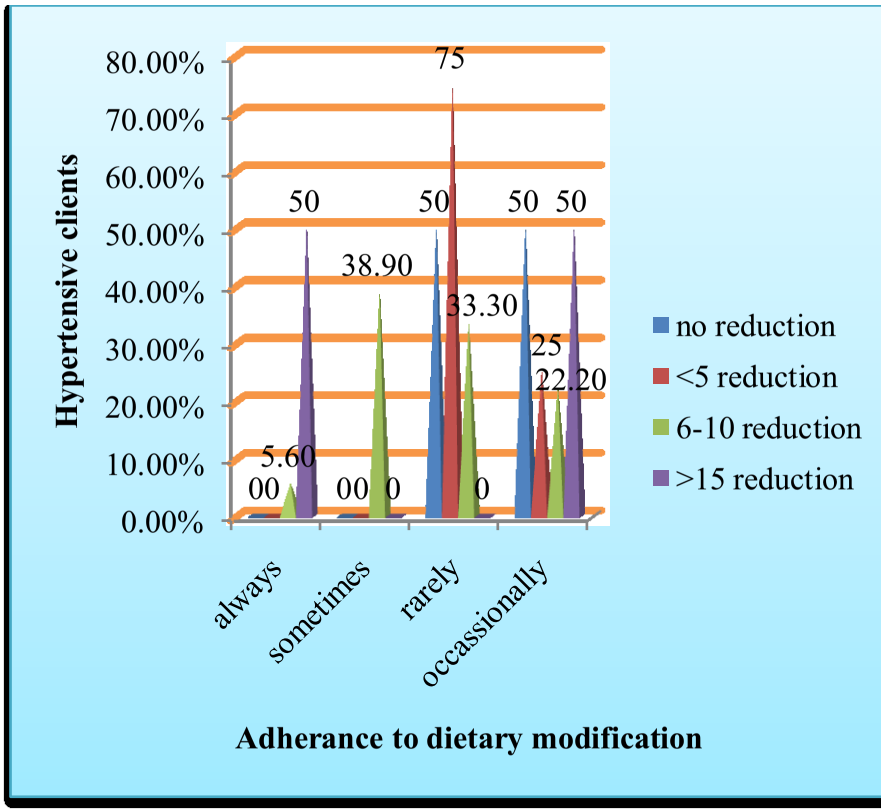


Fig 4.18: Association between the adherence to dietary modification by hypertensive clients and the reduction of diastolic blood pressure

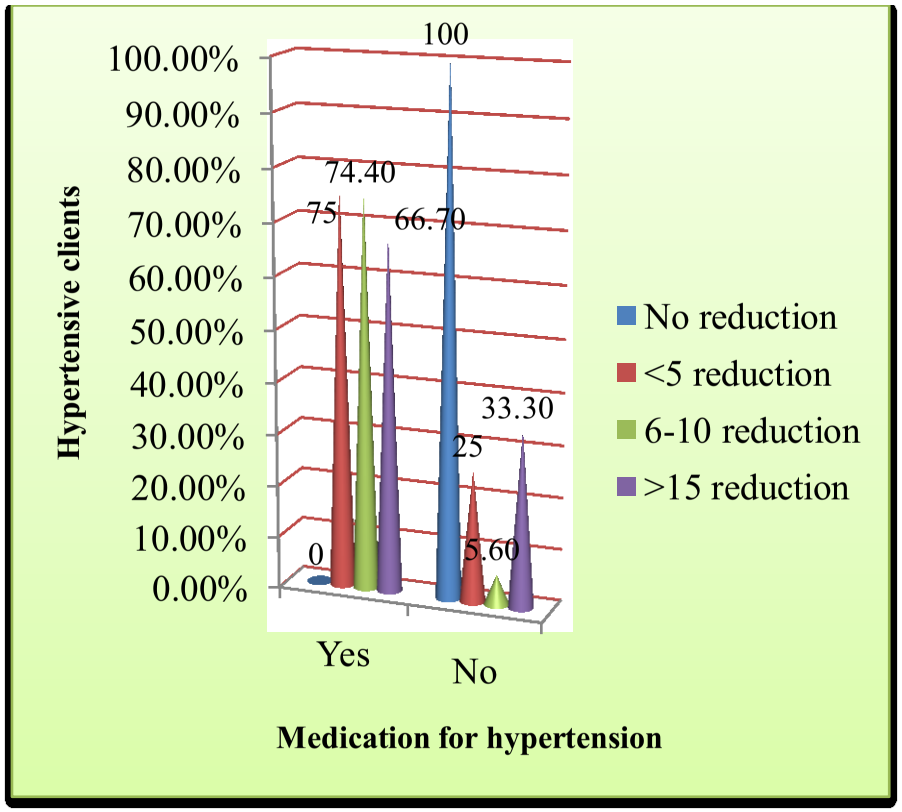


Fig 4.19: Association between the medication taken for hypertension by hypertensive clients and the reduction of diastolic blood pressure

Table 20: Associate the selected clinical variable (life style factors) with the reduction of DBP in the experimental group.

Demographic variable		Level of DBP reduction				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	%	
Exercise	yes	1	1	9	2	13	43.3	$\chi2=1.15$ p=0.76
	no	1	3	9	4	17	56.7	
Duration of exercise	20 min	1	0	3	1	4	30.8	$\chi2=4.3$ p=0.63
	20 – 40 min	0	1	5	2	8	61.5	
	40 – 60 min	0	0	1	0	1	7.7	
Practice of exercise in a week	daily	0	0	3	1	4	30.8	**$\chi2=13.81$ p=0.03 ***
	Once in a day	1	0	6	1	8	61.5	
	Twice a day	0	1	0	0	1	7.7	
Bad habits	alcohol	0	0	1	0	1	3.3	$\chi2=6.89$ p=0.96
	smoking	0	0	4	1	5	16.7	
	Tobacco chewing	0	1	3	0	4	13.3	
	none	1	2	7	4	14	46.7	
	Alcohol and smoking	0	0	1	0	1	3.3	
	Alcohol and tobacco	1	1	2	1	5	16.7	
Duration of watching T.V	½ - 1 hour	0	0	2	0	2	6.7	$\chi2=5.37$ p=0.8
	1 – 2 hours	0	1	3	0	4	13.3	
	2 – 3 hours	1	0	5	2	8	26.7	
	>3 hours	1	3	8	4	16	53.3	

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 19 shows that there is a statistical significance association between the life style factors for hypertension like those who Practice exercise once day (p≤ 0.03 with CI at 95%) with the reduction of diastolic blood pressure

Fig 4.20: Association between the practice of exercise in a week and the reduction of diastolic blood pressure

Table 21: Associate the selected clinical variable (Dietary factors) with the reduction of DBP in the experimental group.

Demographic variable		Level of DBP reduction				Total		Chi-square test
		No reduction	<5	6-10	>15	frequency	In %	
Diet pattern	vegetarian	1	1	4	0	6	20	$\chi2=3.39$ p=0.76
	Non vegetarian	0	0	2	1	3	10	
	Mixed	1	3	12	5	21	70	
Duration of non veg taken	daily	1	0	2	2	5	20.8	$\chi2=9.66$ p=0.38
	Alternate day	0	0	4	0	4	16.7	
	Once a week	0	3	7	4	14	58.3	
	Once a month	0	0	1	0	1	4.2	
Salty foods	pickle	0	2	5	3	10	33.3	$\chi2=8.7$ p=0.73
	dryfish	1	0	3	1	5	16.7	
	all	0	1	2	0	3	10	
	Pickle and appalam	0	0	4	0	4	13.3	
	Appalam and dryfish	1	1	4	2	8	26.7	
Tea	yes	2	4	16	6	28	93.3	$\chi2=1.43$ p=0.7
	no	0	0	2	0	2	6.7	
Duration of tea intake	Once a day	0	0	1	3	4	14.3	**$\chi2=19.25$ p=0.02 ***
	Twice a day	0	4	5	1	10	35.7	
	Thrice a day	2	0	6	1	9	32.1	
	>thrice a day	0	0	4	1	5	17.9	
coffee	Yes	2	4	7	3	12	40	$\chi2=1.76$ p=0.62
	no	2	2	11	3	18	60	
Duration of coffee intake	Once a day	0	2	6	3	11	91.7	$\chi2=0.78$ p=0.68
	Twice a day	0	0	1	0	1	8.3	
oil	Groundnut oil	1	2	6	2	11	36.7	$\chi2=5.18$ p=0.8
	Coconut oil	0	0	4	0	4	13.3	
	Sunflower oil	0	2	6	3	11	36.7	

*significant at P≤0.05

** highly significant at P≤0.01

*** very high significant at P≤0.001

Table 20 shows that there is a statistical significance between the dietary factors for hypertension like those who take tea twice a day (p≤ 0.03 with CI at 95%) and the reduction of diastolic blood pressure

Fig 4.21: Association between the duration of tea intake of hypertensive clients and the reduction of diastolic blood pressure

CHAPTER – V

SUMMARY OF RESULTS

CHAPTER V

SUMMARY OF THE RESULTS

With regard to the demographic variables of Hypertensive clients,

Among experimental group majority 30% were between 51-55 years,60% were females, 53.3% were Hindus, 63.3% of them were married,30% were completed secondary education, 46.7% were unemployed, 40.0% had more than 5 members in a family,40% had income between 5000 – 10000 rupees.

Among the control group , majority 30% were between 51-55 years,60% were females, 53.3% were Hindus, 63.3% of them were married,30% were completed secondary education, 56.7% were unemployed, 43.3% had more 4 members in a family,40% had income between 5000 to 10000 rupees.

With regard to the clinical variables of Hypertensive clients,

Among experimental group, about 56.7% have a habit of doing exercise, among which ,61.5% practice for 20 – 40 minutes and 61.5% do it only once a day. Majority (46.7%) have no bad habits, 53.3% have the habit of watching T.V for more than 3 hours.

About 70% of them take mixed diet 58.3% take once in a week, 33.3% like Appalam where 93.3% take tea twice a day(35.7%) and coffee(40%) at once a day (91.7%), majority of them use sunflower oil 36.7%,

Majority of 50% becomes upset easily, 33.3% practice watching T.V to relieve stress. About 63.3% have a family history of hypertension and diagnosed within 1-3 years (50%), 70% changed their diet pattern but (33.3%) follow the medication rarely. Majority (80%) were under medication for 1-3 years (62.5%) and 63.3% of them take medication regularly.

Among control group, about 56.7% practice exercise regularly, 52.2% exercise for 20 minutes and 37.5% do it daily, 60% have no bad habits, 63.3% watches T.V more than 3 hours.

About 66.7% take mixed diet 52.2% take once a week,36.7% like appalam and dryfish, 96.7% take tea twice a day(44.8%) and coffee(43.3%) once a day(92.3%), majority use sunflower oil 36.7%, 60% becomes easily upset and practice watches T.V (66.7%) to relieve stress. 40% were having the family history of hypertension and diagnosed <1 year(50%) as well as 1-3 years(50%) then 76.3% change their diet pattern(70%) after diagnosed with hypertension and adherence to dietary modification sometime and rarely by 33.3%. About 83.3% were under medication for 1-3 years(44%) and 66.7% of them take medication regularly.

The major objectives brought out the following findings,

- The mean SBP of pre test level was 148 in experimental group and 148.33 in control group.
- The mean SBP of post test level was 137.83 in experimental group and 147 in control group.
- The mean DBP of pre test level was 89 in experimental group and 89.67 in control group.
- The mean DBP of post test level was 78.33 in experimental group and 87.33 in control group.
- Amla juice was found effective in reducing blood pressure level among hypertensive clients as the blood pressure level was reduced from the systolic and diastolic mean of 148 to 137.83 and 89 to 78.33. Due to the amla juice they are able to reduce 10.17 and 10.67 from baseline score. This difference is large and it is statistically significant ($p \leq 0.001$ with CI at 95%)
- There was no statistical significant difference between the pre test and post test systolic and diastolic blood pressure among control group.

- Comparison of blood pressure value between experimental and control group showed that, in experimental group, between pretest and post test the difference is large and statistically significant with $p \leq 0.001$ at 95% CI but in the control group between pretest and post test difference is small, so it is not statistically significant.
- The amla juice was found to be effective in experimental group by considering SBP level, 6.8% of blood pressure was reduced than the pretest and by considering DBP level, 11.9% of blood pressure was reduced than the pretest. And in control group 0.89% reduction of systolic blood pressure and 2.60% reduction of diastolic blood pressure than the pretest.
- In **considering SBP**, the association of the effectiveness of amla juice with the selected demographic and clinical variables among experimental group was found that about 30% in the age group of 51 – 55 years, there was a significant association of age ($p<0.04$) and the number of members in a family ($p<0.02$) with reduction of blood pressure. About 61.5% effective for those who doing exercise once in a day ($p<0.02$) for 20-40 minutes ($p<0.02$) and 53.3% effective for those who watch T.V for more than 3 hours ($p<0.02$) with the reduction of blood pressure
- In **considering DBP**, the association of the effectiveness of amla juice with the selected demographic and clinical variables among experimental group was found that 61.5% effective for those who doing exercise for 20-40 minutes ($p<0.03$). About 35.7% effective for those who take tea twice a day ($p<0.02$). It was 33.3% effective among people with rarely follow the dietary modification ($p<0.02$) with the reduction of blood pressure.

CHAPTER – VI

DISCUSSION

CHAPTER VI

DISCUSSION

Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. This fact is important because hypertension is a controllable disease and a 2 mmHg population-wide decrease in BP can prevent 151,000 stroke and 153,000 coronary heart disease deaths in India.

The Journal of the American Heart Association(2013), published that the DASH diet also reduces blood levels of homocysteine. High levels of this amino acid may increase the risk for heart disease, stroke and other vascular diseases.

The present study was focused to assess the effectiveness of Amla juice with honey in the control of blood pressure among hypertensive client at choolai, Chennai.

The discussion about the study findings has presented in this chapter to arrive at a conclusion based on the objectives, the related literature and the hypothesis.

Objectives of the study

- To assess the pretest and post test blood pressure level among hypertensive client in experimental group
- To assess the pretest and post test blood pressure level among hypertensive client in control group
- To identify the effectiveness of Amla juice with honey in the control of blood pressure level among hypertensive client.
- To find out the association between certain selected demographic and clinical variablewith reduction of blood pressure levelin experimental group

Objective 1:To assess the pretest and post test blood pressure level among hypertensive client in experimental group.

The hypertensive clients were interviewed with the questionnaire and the pretest and the post test was conducted for the experimental group showed that the pretest mean SBP was 148 ± 8.47 and the post test SBP level was 137.83± 8.78 then the difference was 10.17 which was considered as large. So, there is a statistical significant difference between pretest and post test systolic blood pressure ($p \leq 0.001$ with CI at 95%)

About DBP, the pretest mean diastolic blood pressure level was 89 ± 8.84 and the post test DBP was 78.33± 7.9 then the difference was 10.67 which was considered as large. So, there is a statistical significant difference between pretest and post test diastolic blood pressure ($p \leq 0.001$ with CI at 95%)

The above findings are consistent with **Juraschek SP, et al. (2012)** haveconducted a systematic review and meta-analysis of clinical trials that examined the effects of vitamin C supplementation on BP among 10 to 120 participants the median dose was 500 mg/d, the median duration was 8 wk. The pooled changes in SBP and DBP were -3.84 mm Hg (95% CI: -5.29, -2.38 mm Hg; $P < 0.01$) and -1.48 mm Hg (95% CI: -2.86, -0.10 mm Hg; $P = 0.04$), respectively. In trials in hypertensive participants, corresponding reductions in SBP and DBP were -4.85 mm Hg ($P < 0.01$) and -1.67 mm Hg ($P = 0.17$). After the inclusion of 9 trials with imputed BP effects, BP effects were attenuated but remained significant.

Objective 2:To assess the pretest and post test blood pressure level among hypertensive client in control group

In assessing the pretest and the post test for the control group, showed that the pretest mean SBP was 148.33 ± 7.47 and the post test SBP was 147± 6.51 then the difference was 1.33 which was considered as small. So, there is no statistical significant difference between pretest and post test systolic blood pressure.
About DBP, the pretest mean diastolic blood pressure was 89.67 ± 6.15 and the post test DBP was 87.33± 6.40 then the difference was 2.33. So, there is a statistical difference between pretest and post test diastolic blood pressure.

This objective was supported by **Kim MT, Han HR, et al. (2006)** conducted a quasi-experimental study to test the efficacy of a self help intervention programme for HBP control in first generation Korean American seniors with HBP. The sample was 40 Korean American seniors (≥ 60 years old). Thirty one receivedthe intervention and completed the follow-up interviews at 6 months. Result was affective in significantly improving the proportion of individuals who achieved BP control (< 140/90mmHg) and in lowering both systolic and diastolic BP in the sample.

Objective 3: To identify the effectiveness of Amla juice with honey in the control of blood pressure level among hypertensive client.

In experimental group, the mean systolic blood pressure reduction is 10.17 and the diastolic blood pressure is 10.67. On an average, SBP was reduced by 6.8% than pretest and DBP was reduced by 11.9% than pretest. It shows that there is a significant reduction of systolic and diastolic blood pressure level after the intervention of Amla juice with honey.

In control group, the mean systolic blood pressure reduction is 1.33 and the diastolic blood pressure is 2.34. On an average, SBP was reduced to 0.89% than pretest and DBP was reduced to 2.60% than pretest.

In the above findings revealed that the more effectiveness of Amla juice with honey on reduction of diastolic blood pressure (11.99%) than the systolic blood pressure (6.8%) in experimental group.

Dr. Leah Coles et al. (2013) conducted a study in Londoners with hypertension. Their systolic pressure was between 140 and 159, while their diastolic pressure was between 90 and 99. These 15 volunteers were given a cup (200 ml) of amla juice to drink as a dietary source of polyphenols. In the placebo arm, the beverage was low nitrate water. In patients with hypertension SBP> 140 mm Hg at baseline, systolic blood pressure was on average p=0.03, lower in the amla juice group compared with control group over the 15 days treatment. He concluded that amla extract is lowering systolic blood pressure with treated hypertension.

Objective 4:To find out the association between certain selected demographic and clinical variable with reduction of blood pressure level in experimental group.

Table no 13, 14, 18, 19, 20 and 22 shows the association between systolic blood pressure reduction and their demographic variables, the factors contributing to hypertension and the clinical variables of hypertension.

The statistically significant association between certain demographic and clinical variables with the reduction of SBP which explains as about 30% of clients age between 51-55 years($p \leq 0.04$), 40% of clients those who are having above 5 members in a family ($p \leq 0.04$), among 61.5% of study participants those who exercise once in a day for 20 – 40 minutes was statistically significantwith $p \leq 0.02$

at 95% with CI. And also 53.3% of clients who watch T.V for more than 3hrs (p≤ 0.02 with CI at 95%) is statistically associated with the reduction of SBP.

The statistically significantassociation between certain demographic and clinical variables with the reduction of DBP which showed that there are 30% of clients with age 51-55 years (p≤ 0.05), those who attend secondary education (p≤ 0.02), doing exercise once in a day (p≤ 0.03) ,among the study participant 35.7% those who took tea twice a day (p≤0.02), those who follow modified diet pattern rarely(p≤0.03) after diagnosed with hypertension and also those who take medication for hypertension (80%) is statistically significant with the reduction of DBP as p≤0.01at 95% of CI.

This study was supported by **TulikaGoswamiMahanta**, **et al. (2014)** in the Journal of Clinical epidemiology and global healthobserved in the community-based cross-sectional studyon Behavioral risk factors distribution of cardiovascular diseases and its association with normotension, prehypertension and hypertension amongst tea garden population in Dibrugarh district of Assam.A multistep random sampling was done to include adults aged 35 years and above.Prevalence of hypertension was 44.8% (551) with 481 (39.1%) being pre hypertensive. Prevalence of tobacco use was 1107 (89.9%) with 1049 (85.2%) being current users while alcohol use was 858 (69.7%). Inadequate intake of green leafy vegetables (≤3 servings/week) was found in 807 (65.6%) and fruits in 1210 (98.3%). Weekly intake of high energy food was found in 176 (58.66%) while added salt intake in 758 (61.6%), Physical inactivity (mainly sedentary) in 339 (27.5%). MLR analysis showing significant association between educational status, stress, high energy food, tobacco use, alcohol, overweight/obesity and diabetes with prehypertension and physical activity, high energy food, tobacco use, alcohol, extra salt and diabetes with hypertension.

The overall findings of the study showed that the amla juice was effective in reduction of blood pressure among hypertensive clients in experimental group. As the people in the community are very engaged with the small and frequent works, they didn't have enough time periods to think over the disease process and concentrate over their health. So the investigator made a conclusion that the easily available amlajuice when introduced in the normal diet package of the community people may improve the health of them thereby reducing their risk of developing other diseases.

The assumption of the study was consumption of amla juice is to reduce the blood pressure level is hereby accepted because the present study results also proved that overall 6.8% of SBP and 11.9% of DBP of hypertensive clients with high blood pressure level in experimental group have a improvement in the control of blood pressure after the intervention of amla juice for 14 days.

The hypotheses were accepted as,

H1: There is a significant difference in the pretest and post test blood pressure level among hypertensive clients between the experimental and control group.

In experimental group, the mean pre SBP is 148 mm Hg and in control group is 148.33 mm Hg and the mean post DBP is 137.83 mm Hg and in control group is 147 mm Hg. Then the difference between pre and post SBP and DBP is large. So there is a statistical significance difference in the pre and post test blood pressure level among hypertensive clients between the experimental and control group.

H2: There is a significant association between selected demographic and clinical variables among hypertensive clients with the reduction of blood pressure in experimental group.

In experimental group, the participants age between 51- 55 years, have more than five members in a family, those who are doing exercise once a day for 20 -40 minutes and also watching T.V more than 3 hours were associated with the reduction of SBP.

Among the study participants, those who have age 51-55 years , those who attended secondary education, those who are doing exercise once a day, take tea twice a day, those who follow the modified diet rarely and also those who take anti-hypertensive drugs were associated with the reduction of DBP.

CHAPTER – VII

CONCLUSION AND RECOMMENDATIONS

CHAPTER VII

CONCLUSION AND RECOMMENTATION

The study was conducted to evaluate the effectiveness of Amla juice with honey in the control of blood pressure levels among the hypertensive client in selected urban area at Chennai.

The research design used for this study is experimental design. The research approach used for the study was quantitative research approach. Conceptual framework adopted in the present study was CIPP model. The sample size was 60 Hypertensive clients (30 experimental groups and 30 control group). A sample of Hypertensive clients who met with the inclusion criteria were selected for the study. The samples were selected for the study by using lottery method in simple random sampling technique.

The development of the tool was based on the objectives of the study, review of literature and opinion from experts. All these tools were also translated in Tamil language. The content validity of tools was obtained from exports. The reliability was tested by test retest method and by test re-test method and by conducting pilot study. The objective of the study was explained to the Medical Officer of the Health Post and participants before starting the data collection to get the cooperation during data collection.

The data collection was done for a period of one month. Formal permission was obtained from the Head of the department of preventive and social medicine and corporation of Chennai. Informed consent was obtained from all the samples. Pre assessment blood pressure was checked for the control and experimental group.The samples were divided into control and experimental group.The experimental group of the hypertensive clients with high blood pressure above 140mm Hg was informed about the amla juice (150 ml) which was given in the

morning under direct supervision of investigator. This Amla juice is provided for 14 days for experimental group. The experimental group subjects were monitored by the investigator during home visit, for the better compliance. Samples can take their regular diet and medication. The post blood pressure level was checked after 14 days for the experimental group and the control group. The samples were well co-operated.

Though the hypertensive clients had an antihypertensive drugs for their treatment, they were unaware of the risk factors and complications of hypertension. Thus they choose home management of easily available and accessible Amla juice in reducing high blood pressure level among the hypertensive clients by the investigator made drastic changes in the acceptance and comfort of the people in the urban area. The findings also clearly significant that Amla juice intake considerably reduced the high blood pressure level. Many supporting studies are there for the treatment of hypertension. So this will be the best way to control high blood pressure level in turn increasing the cardiac health of the Hypertensive clients.

7.1 Nursing implication of the study:

Nursing service:

- The nurse can develop the skill in providing necessary education to the hypertensive clients in the urban area where they obtain themselves from the continuous treatment.
- The nurse has to develop knowledge regarding Hypertension and the incidence of Hypertension and their treatment without side effects and cost effective manners.
- The result of the study will help the nurse to enlighten their knowledge in various home therapies concerned with the reduction of Hypertension.

- ❖ The nursing supervisors can provide in-service educations and continuous nursing education to nursing personnel to update their knowledge about various therapies and its valuable benefits to the Hypertensive clients and for the personal practice as a means of good healthy practices.

Nursing education:

- ❖ The nurse educator can create awareness to the student nurse about the home management and the treatment options which are available as unnoticed and with cost effective, easily available and accessible manner for Hypertension.
- ❖ The nurse educator can include the nutritional health tips and diet therapy aspects in the clinical teaching programme, which can be adopted by the students and the nursing personnel in both hospital and community settings.

Nursing administration:

- ❖ Nurses as administrators can influence the quality of nursing care in the community, they can also co-ordinate and discuss about the effectiveness of Amla juice and their other dietary products which maintains the cardiac health.
- ❖ Nurse administrators can encourage the staffs to conduct various programmes to the various nursing and health personnel related to the home management of hypertension which can be easily managed by the people in the community.

Nursing research:

Currently nursing practice is based on evidence based practice. So it is important to do research to equip the community health nurses to be an independent practitioner in various health care settings.

- Nurses and nursing students should undertake more research activities in easily available and acceptable food products in improving cardiac health rather than insisting on the regular medications.
- Nurses can assist researchers of other disciplines in the maintenance and improvement of new modalities in the treatment of hypertension.
- Develop network for new directions in research and collaboration with other Health care professionals for the effective treatment of Hypertension.
- This study can be effectively utilized by the emerging researchers for their reference purposes

7.2 Limitations:

- Some samples hesitated to accept the taste of amla juice and refused to take on daily, so these samples were excluded from the study.
- Small study size and short duration of study which cannot be generalize findings.
- This study limited only for mild and moderate hypertension

7.3 Recommendations for further studies:

- An information booklet can be prepared as a teaching aid in the health centers and outpatient clinics regarding the home management of Hypertension.
- A longitudinal study can be done using post test after one month, six months and one year to see effectiveness of Amla juice in reducing high blood pressure levels.
- A similar study to be in rural areas.
- A comparative study can be conducted to assess the effectiveness of Amla products among urban and rural dwellers.
- Similar study can be replicated on a larger sample.
- Similar study can be conducted in other underserved population areas where the people do not seek any treatment facilities due to distance factors and remain unnoticed of their disease.

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APPENDICES


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INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI-3

EC Reg No.ECR/270/Inst./TN/2013
Telephone No. 044 25305301
Fax : 044 25363970

CERTIFICATE OF APPROVAL

To
Mrs. RAMYA.A,
M.Sc., (Nursing),
College of Nursing,
Madras Medical College,
Chennai – 600 003.

Dear Mrs. RAMYA.A,

The Institutional Ethics Committee has considered your request and approved your study titled **A STUDY TO EVALUATE THE EFFECTIVENESS OF AMLA JUICE WITH HONEY IN THE CONTROL OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENT IN SELECTED URBAN AREA AT CHOOLAI. No.23102014.**

The following members of Ethics Committee were present in the meeting held on 21.10.2014 conducted at Madras Medical College, Chennai-3.

1. Dr.C.Rajendran, M.D.,	: Chairperson
2. Dr.R.Vimala, M.D., Dean, MMC, Ch-3	: Deputy Chairperson
3. Prof.B.Kalaiselvi, M.D., Vice-Principal, MMC, Ch-3	: Member Secretary
4. Prof.R.Nandhini, M.D., Inst.of Pharmacology, MMC	: Member
5. Prof.K.Ramadevi, Director i/c, Inst.of Biochemistry, MMC	: Member
6. Prof.Saraswathy, M.D., Director, Pathology, MMC, Ch-3	: Member
7. Prof.S.G.Sivachidambaram, M.D., Director i/c, Inst.of Internal Medicine, MMC	: Member
8. Dr.Raghumani, M.S., Professor of Surgery, MMC	: Member
9. Thiru S.Rameshkumar, Administrative Officer	: Lay Person
10. Thiru S.Govindasamy, B.A., B.L.,	: Lawyer
11. Tmt.Arnold Saulina, M.A., MSW.,	: Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary, Ethics Committee

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool constructed by Ms.Ramya.A. M.Sc. Nursing II year, College of Nursing, Madras Medical College which is to be used in her study titled **"A STUDY TO EVALUATE THE EFFECTIVENESS OF AMLA JUICE WITH HONEY IN THE CONTROL OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENT IN SELECTED URBAN AREA AT CHOOLAI".** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

SIGNATURE WITH SEAL

Director
Institute of Community Medicine
Madras Medical College & RGGGH
Chennai - 600 003.

NAME : Dr. JOY PARTRICIA PUSHPARANI, M.D.

DESIGNATION: Professor and H.O.D of Community Medicine

COLLEGE : Madras Medical college, Chennai-03

PLACE: Chennai-03.

DATE: 13.07.15

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool constructed by Ms.Ramya.A, M.Sc. Nursing II year, College of Nursing, Madras Medical College which is to be used in her study titled **"A STUDY TO EVALUATE THE EFFECTIVENESS OF AMLA JUICE WITH HONEY IN THE CONTROL OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENT IN SELECTED URBAN AREA AT CHOOLAI."** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

V. Ebi Golda

SIGNATURE WITH SEAL

MADHA COLLEGE OF NURSING
15 JUL 2015
CHENNAI - 600 069

NAME : EBI GOLDA MARY.V

DESIGNATION: READER

COLLEGE : MADHA COLLEGE OF NURSING

PLACE: KUNRATHUR

DATE: 15-07-2015

From

Deputy Commissioner (Health)
Public Health Department
Corporation of Chennai
Ripon Building, Chennai-600003

To

The Principal,
College of Nursing,
Madras Medical College,
Chennai-600003

HD.Roc.No.C1/ 4158/2015 Dt. 23.07.2015

Dear Madam,

Sub: Corporation of Chennai-Public Health Department-College of Nursing-Madras Medical College - Requesting permission for MSc-II year Nursing students study proposed at community area Choolai, Chennai- permission orders issued - regarding.

Ref: Your Letter Dt.07.07.2015.

With reference cited above, the Corporation of Chennai is happy to grant you permission to a study to evaluate the following subjects in selected urban area at choolai.

S.No.	NAME OF THE STUDENT	DISSERTATION TOPICS
1	Jaganathan Rajeswari	A study to assess the efectioveness of holy basil leaves extract in reducing blood sugar amoung diabetes mellitus clients in selected urban area at Choolai.
2	Ramya.A	A study to evaluate the effectiveness of amla juice with honey in the control of bloold pressure among hypertensive client in seleted urban areat at Choolai
3	Sangeetha.V	A study to assess the effectiveness of soya milk with honey consumption on reducing physical and physiological symptoms amoung the post-menopausal women with in age group 40-60 years at Choolai
4	Visithra J	A study to assess and compare the effectiveness of fenugreek leaves with elemental iron and elemental alone on anemia among women residing in selected community at Choolai.

The permission for the study is granted with the following conditions.

1. The study should be conducted as per the request. The study should be conducted in one month, from the date of permission.
2. The Corporation of Chennai will not provide any monitory or human resources support for the study.
3. The details of the study should be submitted to the City Health Officer (i/c), Corporation of Chennai by the candidates before any formal publication.
4. No wrong reporting of Corporation of Chennai should be carried out.

Best wishes,

For Deputy Commissioner (Health) 2/2

REASEACH TOOL

INSTRUCTION FOR CANDIDATES:

- Please be frank and free in answering the questions
- Read each item carefully and answer all the questions
- Answers will be used only for research purpose and will be confidential
- Please put a tick mark at the appropriate options

SECTION A

SOCIO DEMOGRAPHIC DATA

Sample no: Name: Address:

1) Age:

a) 40 - 45 years ( )
b) 46 - 50years ( )
c) 51 - 55 years ( )
d) 56 - 60 years ( )

2) sex:

a) Male ( )
b) Female ( )

3) Religion:

a) Hindu ( )
b) Christian ( )
c) Muslims ( )
d) Other ( )

4) Marital status:

a) Single ( )
b) Married ( )
c) Divorcee ( )
d) Widow / widower ( )

5) Educational status:

a) Primary education ( )
b) Secondary education ( )
c) Degree ( )
d) Diploma ( )
e) No formal education ( )

6) Occupational Classification:

a) Professional ( )
b) Business ( )
c) Daily wages ( )
d) Unemployed ( )

Specify your job _____

7) How many members in your family?

a) 2 ( )
b) 3 ( )
c) 4 ( )
d) 5 and above (mention) ( )

8) Family income per month in Rupees

a) < 2000 ( )
b) 2000 – 5000 ( )
c) 5000 – 10000 ( )
d) > 10000 ( )

SECTION - B

CLINICAL VARIABLE DATA

A) INFORMATION RELATED TO HYPERTENSION

1. How long have been diagnosed with hypertension?

a) <1 year ( )
b) 1-3 years ( )
c) 3-5 years ( )
d) >5 years ( )

2. Have you made any change in the dietary pattern after the diagnosis of hypertension?
    a) Yes ( )
    b) No ( )

3. Are you adhering to the dietary modification?

    a) Always ( )
    b) Sometimes ( )
    c) Rarely ( )
    d) Occasionally ( )

4. Do you take any medication for hypertension?

    a) Yes ( )
    b) No ( )

If yes, specify _____

5. How long have you been on those medications?
    a) <1 year ( )
    b) 1-3 years ( )
    c) 3-5 years ( )
    d) >5 year ( )
6. Do you take your medication regularly?
    a) Yes ( )
    b) No ( )

B) CONTRIBUTORY FACTORS FOR HYPERTENSION:

I. LIFE STYLE FACTORS:

1. Do you practice any exercise?
    a) Yes ( )
    b) No ( )

    If yes, specify _____

2. Duration of exercise/day
    a) < 20 minutes ( )
    b) 20 – 40 minutes ( )
    c) 40 – 60 minutes ( )

3. Frequency of exercise/week
    a) Daily ( )
    b) Once in a day ( )
    c) Twice a day ( )
    d) > twice a day ( )
4. Do you have any bad habit?
    a) Drinking alcohol ( )
    b) Smoking ( )
    c) Tobacco chewing ( )
    d) None ( )
5. Do you have a habit of watching TV?
    a) Yes ( )
    b) No ( )
6. If yes how long do you watch TV/day ?
    a) ½ - 1 hr ( )
    b) 1 – 2 hrs ( )
    c) 2-3hrs ( )
    d) >3 hrs ( )

II. DIETARY FACTORS:

1. Dietary pattern

    a) Vegetarian ( )
    b) Non-vegetarian ( )
    c) Mixed ( )

2. If non vegetarian, mention the frequency?

    a) Daily ( )
    b) Alternate day ( )
    c) Once in a week ( )
    d) Once in a month ( )

3. Mention the Salty Foods which you take?

    a) Pickle ( )
    b) Dryfish ( )
    c) Appalam ( )
    d) All the above ( )

4. Do you have a habit of drinking tea?

a) Yes ( )
b) No ( )

5. If yes specify the frequency _____

a) Once a day ( )
b) Twice a day ( )
c) > Twice a day ( )

6. Do you have a habit of drinking coffee?

a) Yes ( )
b) No ( )

7. If yes specify frequency _____

a) Once a day ( )
b) Twice a day ( )
c) > Twice a day ( )

8. Which type of oil do you prefer for cooking?

a) Groundnut oil ( )
b) Coconut oil ( )
c) Sunflower oil ( )
d) Others ( )

III. EMOTIONAL FACTORS:

1. Do you frequently get upset for silly things?
   a) Yes ( )
   b) No ( )
2. Do you suffer with difficulty in sleeping?
   a) Often ( )
   b) Sometimes ( )
   c) Rarely ( )
   d) Not at all ( )
3. Measure you take to relieve the stresses?
   a) Watching T.V ( )
   b) Listening music ( )
   c) Reading books ( )
   d) Others ( )

SECTION C

Blood pressure monitoring schedule

Sample number:

Days	Blood pressure	
	Systolic	Diastolic
0^{th} day		
3^{rd} day		
6^{th} day		
9^{th} day		
12^{th} day		
15^{th} day		

Scoring key:

Pre assessment blood pressure in mm Hg:

140-159/90-99 Mild hypertension – 1
160-179/100-109 Moderate hypertension – 2
Above 180/110 Severe hypertension – 3

Post assessment systolic and diastolic blood pressure in mm Hg:

No Reduction - 1
< 5 Reduction - 2
6-10 Reduction - 3
11-15 Reduction - 4
>15 Reduction - 5

பகுதி - அ

மாதிரி எண்._____ பெயர்: விலாசம் :

01. வயது வரம்பு

அ) 40 - 45 வருடம் ( )
ஆ) 46 - 50 வருடம் ( )
இ) 51 - 55 வருடம் ( )
ஈ) 56 - 60 வருடம் ( )

02. பாலினம்

அ)ஆண் ( )
ஆ)பெண் ( )

03. மதம்

அ) இந்து ( )
ஆ) கிருத்துவர் ( )
இ) முஸ்லிம் ( )
ஈ) மற்றவை ( )

04. திருமண விபரம்

அ) திருமணமாகாதவர் ( )
ஆ) திருமணமானவர் ( )
இ) விவாகரத்தானவர் ( )
ஈ) மனைவி/கணவனை இழந்தவர் ( )

05. படிப்பு தகுதி

அ) ஆரம்ப கல்வி ( )
ஆ) நடு நிலை கல்வி ( )
இ) பட்டயப்படிப்பு ( )
ஈ) பட்டப்படிப்பு ( )
உ) முறையான கல்வி பயிலாதவர் ( )

06. தொழில் வகைப்பாடு

அ) தொழில் சார்ந்த பணி ( )
ஆ) வியாபாரம் ( )
இ) தினக்கூலி ( )
ஈ) வேலையில்லாதவர் ( )

07. உங்கள் குடும்பத்தில் எத்தனை நபர்கள் உள்ளனர்?

அ) 2 ( )
ஆ) 3 ( )
இ) 4 ( )
ஈ) 5 மற்றும் அதற்குமேல் ( )

08. குடும்ப மாத வருமானம்

அ) < 2000 ரூ ( )
ஆ) 2000-5000ரூ ( )
இ) 5000-10000ரூ ( )
ஈ) >10000ரூ ( )

பகுதி ஆ

I. இரத்த கொதிப்பு தொடர்பான தகவல் :

01. எவ்வளவு வருடங்களாக இரத்த கொதிப்பு உள்ளது என்று கண்டறியப்பட்டது?

அ) ஒரு வருடத்திற்கும் கீழ் ( )
ஆ) 1 - 3 வருடங்கள் ( )
இ) 3 - 5 வருடங்கள் ( )
ஈ) 5 வருடத்திற்கும் மேல் ( )

02. இரத்த கொதிப்பு கண்டறியப்பட்ட பிறகு உணவு பழக்க வழக்கங்களில் மாற்றம் மேற்கொள்ள பட்டதா?

அ)ஆம் ( )
ஆ) இல்லை ( )

03. ஆம் எனில், உணவு பழக்க வழக்க மாற்றங்களை பின்பற்றும் முறை

அ)எப்போதும் உண்டு ( )
ஆ)சில நேரங்களில் ( )
இ)இடைவெள ( )
ஈ)எப்போதாவது ( )

04. இரத்த கொதிப்பிற்கு மருந்து எடுத்துக் கொள்கிறீர்களா?

அ)ஆம் ( )
ஆ) இல்லை ( )

05. எத்தனை வருடங்களாக, இரத்த கொதிப்பிற்கு மருந்து எடுத்துக் கொள்கிறீர்கள்?

அ) ஒரு வருடத்திற்கும் கீழ் ( )
ஆ) 1 - 3 வருடங்கள் ( )
இ) 3 - 5 வருடங்கள் ( )
ஈ) 5 வருடத்திற்கும் மேல் ( )

06. நீங்கள் தவறாமல் தொடர்ந்து மாத்திரை எடுத்து வருகிறீர்களா?

அ)ஆம் ( )
ஆ) இல்லை ( )

I. இரத்த கொதிப்பிற்கு பங்களித்துதவுகிற காரணிகள்:

i. வாழ்கைக் காரணிகள்:

01. தாங்கள் ஏதாவது உடற்பயிற்சி செய்து வருகிறீர்களா?

அ)ஆம் ( )

ஆ) இல்லை ( )

ஆம் எனில் குறிப்பிடுக ——————

02. நாள் ஒன்றுக்கு உடற்பயிற்சியின் கால அளவை குறிப்பிடுக

அ) 20 நிமிடத்திற்குள் ( )

ஆ) 20 - 40 நிமிடங்கள் ( )

இ) 40 - 60 நிமிடங்கள் ( )

ஈ) ஒரு மணி நேரத்திற்கு மேல் ( )

03. தாங்கள் வாரத்தில் எத்தனை நாட்கள் உடற்பயிற்சி செய்து வருகிறீர்கள்?

அ) எல்லா நாட்களும் ( )

ஆ) ஒரு நாளைக்கு ஒரு முறை ( )

இ) ஒரு நாளைக்கு இரண்டு முறை ( )

ஈ)ஒரு நாளைக்கு இரண்டு முறைக்கு மேல் ( )

04. கீழ்கண்டவற்றில் உங்களுக்கு உள்ள பழக்கத்தை குறிப்பிடுக.

அ)குடிப்பழக்கம் ( )

ஆ)புகைபழக்கம் ( )

இ)புகையிலை மெல்லுதல்

ஈ)எதுவும் இல்லை

05. உங்களுக்கு தொலைகாட்சி பார்க்கும் பழக்கம் உள்ளதா?

அ)ஆம் ( )

ஆ) இல்லை ( )

06. ஆம் எனில், எவ்வளவு நேரம் பார்ப்பீர்கள்?

அ)1/2 - 1 மணிவரை ( )

ஆ) 1 - 2 மணிவரை ( )

இ)2 - 3 மணிவரை ( )

ஈ) மூன்று மணிக்கு மேல் ( )

ii. உணவு திட்டஞ் சார்ந்த காரணிகள்:

01. உங்களுடைய உணவு மாதிரியை குறிப்பிடுக

அ)சைவ உணவு ( )
ஆ)அசைவ உணவு ( )
இ)சைவம் மற்றும் அசைவ உணவு கலந்து ( )

02. அசைவ உணவு என்றால், எவ்வளவு நாட்களுக்கு ஒரு முறை எடுத்து கொள்வீர்கள்

அ)தினமும் ( )
ஆ)ஒரு நாள் விட்டு ஒரு நாள் ( )
இ)வாரத்திற்கு ஒரு முறை ( )
ஈ)மாதத்திற்கு ஒரு முறை ( )

03. நீங்கள் எடுத்துக் கொள்ளும் அதிக உப்பு கலந்த உணவை குறிப்பிடுக

அ)ஊறுகாய் ( )
ஆ)கறுவாடு ( )
இ)அப்பளம் ( )
ஈ)மேல் குறிப்பிட்ட அனைத்தும் ( )

04. தங்களுக்கு தேனீர் அருந்தும் பழக்கம் உள்ளதா?

அ)ஆம் ( )
ஆ) இல்லை ( )

05. ஆம் என்றால் எத்தனை முறை என்று குறிப்பிடுக

அ)ஒரு நாளைக்கு ஒரு முறை ( )
ஆ)ஒரு நாளைக்கு இரண்டு முறை ( )
இ)ஒரு நாளைக்கு மூன்று முறை ( )
ஈ)மூன்று முறைக்கு மேல் ( )

06. தங்களுக்கு காபி அருந்தும் பழக்கம் உள்ளதா?

அ)ஆம் ( )
ஆ) இல்லை ( )

07. ஆம் என்றால் எத்தனை முறை என்று குறிப்பிடுக

அ) ஒரு நாளைக்கு ஒரு முறை ( )
ஆ)ஒரு நாளைக்கு இரண்டு முறை ( )
இ)ஒரு நாளைக்கு மூன்று முறை ( )
ஈ)மூன்று முறைக்கு மேல் ( )

08. தாங்கள் சமையலுக்கு எந்த வகையான எண்ணெய்யை தேர்ந்தெடுப்பீர்கள்?

அ)நிலக்கடலை எண்ணெய் ( )
ஆ)தேங்காய் எண்ணெய் ( )
இ)சூரியகாந்தி எண்ணெய் ( )
ஈ)மற்றவை ( )

iii. உணர்ச்சி வயப்பட்ட காரணிகள்:

01. தாங்கள் சிறு விஷயங்களுக்கு கூட அடிக்கடி மனச்சோர்வு அடைவீர்களா?

அ)ஆம் ( )
ஆ) இல்லை ( )

02. எத்தனை முறை தூக்கமின்மையால் அவதிப்படுகிறீர்கள்?

அ)அடிக்கடி ( )
ஆ)சில நேரங்களில் ( )
இ)எப்போதாவது ( )
ஈ)எப்போதும் இல்லை ( )

03. மன இறுக்கத்தை போக்க, நீங்கள் மேற்கொள்ளும் வழிமுறைகள் என்ன?

அ)தொலைகாட்சி பார்ப்பது ( )
ஆ)இசை கேட்பது ( )
இ)புத்தகம் படிப்பது ( )
ஈ)மற்றவை ( )

பகுதி இ

இரத்த அழுத்தத்திற்கான நேர்காணல் படிவம்:

வ.எண்	இரத்த அழுத்தம் எடுக்கப்படும் நாட்கள்	இரத்த அழுத்தத்தின் அளவு நெல்லிகாய் சாறு உட்கொள்ளும் முன்	இரத்த அழுத்தத்தின் அளவு நெல்லிகாய் சாறு உட்கொண்ட பின்
1.	முதல் நாள்		
2.	மூன்றாம் நாள்		
3.	ஆறாம் நாள்		
4.	ஒன்பதாம் நாள்		
5.	பனிரெண்டாம் நாள்		
6.	பதினைந்தாம் நாள்		

INFORMATION TO PARTICIPANTS

TITLE:

"A STUDY TO EVALUATE THE EFFECTIVENESS OF AMLA JUICE WITH HONEY IN THE CONTROL OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENT IN SELECTED AREA AT CHOOLAI, CHENNAI"– A randomized pilot study.

INVESTIGATOR:

NAME OF THE PARTICIPANT:

This study is conducted in urban area –choolai, Chennai. You are requested to take part in this study. The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns.

WHAT IS THE PURPOSE OF THIS STUDY

Today, life has become so stressful that there is hardly any man who is not suffering any kind of disease. Long working hours, unhealthy food habit, insufficient rest and sleep, tension and stress, all leads to different health problems. High blood pressure is one such problem in which the blood pressure rises more than the normal pressure level of 120/80 mm of Hg. This not only is an alarming condition, but it leads to several other heart-related disease, poor functioning of the sense organ, etc. Studies have proved that high blood levels of vitamin C helps in reducing systolic and diastolic blood pressure. Amla also aids lowering blood cholesterol levels.

THE STUDY DESIGN

All patients in the study will be divided in to 2 groups. You will be assigned to either of the groups. One group will receive amla juice with honey and the other group will be kept for observation.

STUDY PROCEDURE

The study involves the assessment of blood pressure among hypertensive client with the help of sphygmomanometer and the questionnaire containing the socio-demographic variable. Socio-Demographic variable include age, education, type of family, income, dietary pattern, life style, daily life activities. Instruction will be given to the client; take 1-2 tablespoon of amla juice with honey in empty stomach early in the morning is more effective to control blood pressure level. Preparation of amla juice is take a 50 gm of amla then blend and mixed with 50 ml of water and then mixed with 2 ml (1tsp) of honey. You will be checked for controlling the blood pressure. If u notices any adverse event you have to report it.

POSSIBLE BENEFITS TO YOU

After finishing this study, investigator will provide information that consumption of amla juice with honey in empty stomach is effective in reducing blood pressure among hypertensive client.

POSSIBLE BENEFITS TO THE OTHER PEOPLE

The results of the research may provide benefits to the society in terms of advancement of knowledge regarding natural home remedies benefits to the future patients.

CONFIDENTIALITY OF THE INFORMATION OBTAINED FROM YOU

You have the right to confidentiality regarding the privacy of your medical information (personal details, results of physical examination, investigations, and your medical history). By signing this document you will be allowing the research team investigators, other study personnel, sponsors, institutional ethics committee and any person or agency required by law like the drug controller general government of India to

view your Data if required. The information from this study, if published in scientific journals or presented at scientific meetings, will not reveal your identity.

HOW WILL YOUR DECISION TO NOT PARTICIPATE IN THE STUDY AFFECT YOU

Your decision not to participate in this research study will not affect your health or your relationship with the investigator or the institution. You will be taken care of and you will not lose benefits to which you are entitled.

CAN YOU DECIDE TO STOP PARTICIPATING IN THE STUDY ONCE START

The participation in this research is purely voluntary and you have the rights to withdraw from this study at any time during the course of the study

Without giving any reasons however, it is advisable that you talk to the research team prior to stopping the treatment or discontinuing of procedures etc…

The results of this study will be informed to you at the end of the study.

Signature of investigator: Signature of participants:

Date: Date:

INFORMED CONSENT FORM

"A STUDY TO EVALUATE THE EFFECTIVENESS OF AMLA JUICE WITH HONEY IN THE CONTROL OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENT IN SELECTED AREA AT CHOOLAI, CHENNAI"

NAME OF THE PARTICIPANT:

I _____ have read the information in this form(or it has been read to me).I was free to ask any questions and they have been answered .I am over 18 years of age and exercising my free power of choice, hereby give my consent to be included as a participant in this study.

1. I have read and understood this consent form and the information provided to me.
2. I have had the consent document explained to me.
3. I have been explained about the nature of the study.
4. I have been explained about my rights and responsibilities by the investigator.
5. I am aware of the fact that I can opt out of the study at any time without having to give any reason and this will not affect my future treatment.
6. I hereby give permission to the investigators to release the information obtained from me as result of participation in this study to the sponsors, regulatory authorities, govt. agencies, and IEC. I understand that they are publicly presented.
7. I have understood that my identity will be kept confidential if my data are publicly presented.
8. I have had my questions answered to my satisfaction.
9. I have decided to be in the research study.

I am aware that if I have any question during this study, I should contact the investigator. By signing this consent form I attest that the information given a copy of this consent document.

1. Name and signature / thumb impression of the participant (or legal representative if participation incompetent)

   Name _____ signature _____

   Date _____

2. Name and signature of impartial witness(required for illiterate patients)

   Name _____ signature _____

   Date _____

   Address and contact number of the impartial witness

3. Name and signature of the investigator or his representative obtaining consent

   Name _____ signature _____

   Date _____

சுய ஒப்புதல் படிவம்

ஆராய்ச்சி தலைப்பு : நெல்லிச் சாருடன் தேன் கலந்து கொடுப்பதினால் இரத்த அழுத்தத்தை கட்டுப்படுத்த முடியும் என்பதை பற்றிய ஓர் திரனாய்வு

ஆய்வாளர் பெயர் : ஆ.ரம்யா

பங்கேற்பாளர் பெயர் :

தேதி :

வயது/பால் :

- ஆய்வாளர் மேற்கொள்ளும் ஆராய்ச்சியில் பங்கேற்க யாருடைய கட்டாயமுமின்றி முழுமனதுடனும் சுயநினைவுடனும் சம்மதிக்கிறேன்.
- ஆய்வாளர் மேற்கொள்ள போகும் பரிசோதனைகளை மிக தெளிவாக விளக்கிக்கூறினார்.
- எனக்கு விருப்பமில்லாத பட்சத்தில் ஆராய்ச்சியிலிருந்து எந்நேரமும் விலகலாம் என்பதையும் ஆய்வாளர் மூலம் அறிந்து கொண்டேன்.
- இந்த ஆராய்ச்சி ஒப்புதல் கடிதத்தில் உள்ள விவரங்களை நன்கு புரிந்துகொண்டேன். எனது உரிமைகள் மற்றும் கடமைகள் ஆராய்ச்சியாளர் மூலம் விளக்கபட்டது.
- நான் ஆராய்ச்சியாளருடன் ஒத்துழைக்க சம்மதிக்கிறேன். எனக்கு ஏதேனும் உடல்நலகுறைவு ஏற்பட்டால் ஆராய்ச்சியாளரிடம் தெரிவிப்பேன்.

- நான் வேறு எந்த ஆராய்ச்சிலும் தற்சமயம் இடம்பெறவில்லை என்பதை தெரிவித்துகொள்கிறேன்.
- இந்த ஆராய்ச்சியின் தகவல்களை வெளியிட சம்மதிக்கிறேன். அப்படி வெளியிடும்போது என் அடையாளம் வெளிவராது என்பதை அறிவேன்.
- எனக்கு இந்த ஒப்புதல் கடிதத்தின் நகல் கொடுக்கபட்டது.

ஆய்வாளர் கையொப்பம் பங்கேற்பாளர் கையொப்பம்

தேதி : தேதி:

ஆராய்ச்சி தகவல் தாள்

ஆராய்ச்சி தலைப்பு : நெல்லிச் சாருடன் தேன் கலந்து கொடுப்பதினால் இரத்த அழுத்தத்தை கட்டுப்படுத்த முடியும் என்பதை பற்றிய ஓர் திரனாய்வு

ஆய்வாளர் பெயர் : ஆ.ரம்யா

பங்கேற்பாளர் பெயர் :

தேதி :

வயது/பால்

ஆய்வாளர் மேற்கொள்ளும் ஆராய்ச்சியில் பங்கேற்க யாருடைய கட்டாயமுமின்றி முழுமனதுடனும் சம்மதிக்கலாம். இதில் பங்கேற்பதன் நோக்கம். இந்த ஆராய்ச்சியில் தகவல்களை தெரிந்து கொள்வதற்காகவும். அதனை பயன்படுத்துவதற்காக மட்டும் தான்.

இந்த ஆராய்சியின் நோக்கம் நெல்லிக்கனி சாறுடன் தேன் கலந்து வெறும் வயிற்றில் பருகினால் இரத்த அழுத்தம் சீரடையும் என்பதாகும்.

ஆராய்ச்சி மேற்கொள்ளும் முறை

இந்த ஆராய்ச்சியில், இரத்த அழுத்தம் நோயாளிகளுக்கிடையே ஆய்வாளர் தயார் செய்த கேள்வி மூலம் புள்ளி விவர ஆய்வு மாற்றுரு முடிவடைந்தவுடன், தயார் செய்த நெல்லிச் சாறுடன் தேன் கலந்து கொடுப்பதற்கு முன்பும் பின்பும் அவருடைய இரத்த அழுத்தம் இரண்டு வரங்களுக்கு பின்பு அறியலாம்.

இதனால் ஆய்வாளருக்கான பயன்

இந்த ஆய்விற்குபின் இரத்த அழுத்தம் நோயாளிகளுக்கிடையே நெல்லிச் சாறுடன் தேன் கலந்து பருகுவதினால், இரத்த அழுத்தம் சீரடையும் என்ற தாக்கத்தினை அறியலாம்.

இதனால் பங்கேற்பாளருக்கான பயன்

இந்த ஆய்வு உயர் இரத்த அழுத்தத்தினால் ஏற்படும் பின்விளைவுகளை தவிர்க்க, இச்சாறு (நெல்லிச் சாறுருடன் தேன்) பயன்படுகிறது.

ஆராய்ச்சியில் பங்கேற்கவில்லை என்றாலும், உங்களின் சராசரி வாழ்கைமுறை, மருத்துவரின் ஆலோசனை மற்றும் சிகிச்சை முறையில் எந்த வித மாற்றமும் ஏற்படாது என்பதை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியில் பங்கேற்க விருப்பம் இல்லை என்றால் உங்களின் முழுமனதுடன் நீங்கள் இந்த ஆராய்ச்சியில் இருந்து விலகி கொள்ளலாம் என்பதை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியில் உங்களின் மருத்துவதகவல்களை பாதுகாப்பாக வைத்துகொள்கிறேன் என்பதை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியின் தகவல்களை வெளியிடும் போது, உங்களை பற்றிய அடையாளங்கள் வெளிவராது என்பதை உறுதி கூறுகிறேன்.

ஆய்வாளர் கையொப்பம் பங்கேற்பாளர் கையொப்பம்

தேதி தேதி

		EXPER.Group (DEMOGRAPHIC PROFILE)								I. LIFE STYLE FACTORS						II. DIETARY FACTORS								III. EMOTIONAL FACTORS			INFORMATION RELATED TO HYPERTENSION						
SI.NO	GR	AGE	SX	RLG	M. St	Ed St	Occu	Mem	Inc	Exe	Dur	Exe-Wk	B.Hb	TV	Hw Lg	Dt Pt	Hw Oft	Slty fds	Tea	Dr.	Cof	Dur	OIL	Upst	Dif slp	Reli Strs	Fmly His-Ht	Ht-D	Ay Chng Dit	Flw	Med	Hw Lng	Reg
1	1	1	2	1	2	2	4	3	3	1	2	2	4	1	4	3	3	1	1	3	2	-	3	2	3	1	1	2	1	3	1	2	1
2	1	3	2	1	2	5	3	3	2	2	-	-	3	1	3	3	2	4	1	4	2	-	3	1	2	1	1	3	2	-	1	3	2
3	1	1	2	1	3	4	2	4	4	1	2	1	2	1	3	3	3	1	1	3	1	1	1	1	2	1	1	2	1	4	1	2	1
4	1	1	2	1	2	3	4	3	3	1	2	2	4	1	4	3	3	3	1	2	1	1	3	2	3	3	2	1	1	2	1	1	1
5	1	4	2	1	4	5	4	4	4	2	-	-	2	1	4	2	2	1	1	2	2	-	1	2	1	1	1	3	1	3	1	3	2
6	1	2	1	1	4	3	2	2	3	1	3	2	5	1	2	3	3	4	1	3	2	-	4	1	1	2	2	2	2	4	1	2	1
7	1	4	1	3	2	2	3	4	3	2	-	-	6	1	3	3	2	2	1	3	2	-	1	2	3	1	1	3	2	4	1	3	2
8	1	3	2	1	1	1	4	3	2	2	-	-	4	1	4	3	3	1	1	1	1	1	3	1	1	1	1	4	1	1	1	4	1
9	1	2	1	1	1	3	1	4	4	1	2	2	2	1	1	1	-	5	1	3	2	-	3	1	2	2	2	2	2	2	1	2	1
10	1	4	2	3	2	4	4	1	2	2	-	-	1	1	4	3	3	1	2	-	1	1	1	2	2	1	2	3	1	2	1	2	1
11	1	1	1	2	2	5	3	4	2	2	-	-	6	1	3	3	1	2	1	3	2	-	4	2	3	4	1	1	2	4	2	-	2
12	1	1	2	2	2	2	4	4	3	1	1	1	4	1	4	3	3	4	1	2	1	1	3	1	1	1	1	1	2	4	1	1	1
13	1	2	2	1	2	4	2	3	2	1	1	2	3	1	4	1	-	5	1	3	2	-	2	1	2	1	2	2	1	2	1	2	1
14	1	3	2	1	2	5	4	4	4	2	-	-	4	1	4	3	4	3	1	1	1	1	1	1	3	1	1	2	1	3	1	2	1
15	1	4	2	1	2	2	4	2	3	2	-	-	4	1	4	1	-	1	1	2	2	-	3	2	1	1	1	1	1	3	2	-	2
16	1	3	1	2	1	4	2	4	4	2	-	-	3	1	2	1	-	5	1	4	2	-	2	1	4	2	2	2	1	2	1	2	1
17	1	2	2	1	2	3	4	3	4	1	2	2	4	1	4	3	3	1	1	1	1	1	3	1	4	2	2	1	1	1	1	1	1
18	1	3	2	3	2	1	4	4	4	2	-	-	4	1	4	2	1	2	1	1	-	-	1	2	3	1	1	2	2	4	1	2	2
19	1	2	1	3	2	2	2	3	3	1	2	1	2	1	1	3	2	4	2	-	1	2	4	2	1	3	1	3	1	2	1	3	1
20	1	4	2	1	4	5	4	4	4	2	-	-	4	1	3	1	-	5	1	4	2	-	3	2	1	4	1	3	1	2	1	3	1
21	1	3	1	2	2	2	2	2	2	2	-	-	6	1	2	3	3	3	1	2	1	1	1	1	2	1	1	2	2	4	1	2	1
22	1	3	1	2	4	3	1	2	3	1	2	2	2	1	3	3	3	1	1	3	2	-	2	2	2	2	1	2	1	3	1	2	2
23	1	2	2	1	1	5	4	3	2	1	1	2	4	1	4	1	-	5	1	3	2	-	1	1	2	1	1	1	1	3	2	-	2
24	1	2	2	1	2	1	3	1	2	2	-	-	4	1	4	3	3	1	1	4	2	-	1	2	1	1	2	1	1	3	2	-	2
25	1	2	2	1	2	5	4	4	4	1	1	1	4	1	3	3	1	2	1	2	1	1	1	1	3	1	2	2	1	1	1	2	1
26	1	1	1	3	2	2	3	2	3	2	-	-	6	1	3	3	1	5	1	2	2	-	4	1	2	2	1	2	2	4	2	-	2
27	1	4	2	1	4	5	4	3	3	2	-	-	3	1	4	3	3	1	1	2	2	-	3	2	1	1	1	2	1	3	1	2	1
28	1	3	2	1	2	2	3	3	3	1	2	3	4	1	4	3	3	5	1	2	1	1	1	2	3	1	2	2	1	3	1	2	1
29	1	2	1	2	2	4	2	4	3	2	-	-	4	1	4	3	3	5	1	4	2	-	3	1	4	2	1	1	1	1	2	-	2
30	1	3	1	2	2	2	3	2	2	2	-	-	6	1	2	2	1	2	1	2	1	1	2	2	2	1	2	2	1	3	1	2	1

CONTROL GROUP

SI.NO	GR	AGE	SX	RLG	M. St	Ed St	Occu	Mem	Inc	Exe	Dur	Exe-Wk	B.Hb	TV	Hw Lg	Dt Pt	Hw Oft	Slty fds	Tea	Dr.	Cof	Dur	OIL	Upst	Dif slp	Reli Strs	Fmly His-Ht	Ht-D	Dt Chg	Flw	Med	Hw Lng	Reg
1	2	2	1	2	2	2	4	3	3	1	2	2	4	1	4	3	3	5	1	3	2	-	3	1	2	1	2	1	1	2	1	1	1
2	2	3	1	1	2	1	2	4	4	2	-	-	2	1	3	2	1	2	1	2	1	1	1	2	3	2	1	2	2	4	1	2	1
3	2	2	2	1	4	4	3	1	2	2	-	-	4	1	4	3	3	1	1	4	2	-	3	1	1	1	2	1	1	2	2	-	2
4	2	2	2	1	2	2	4	3	3	1	1	1	4	1	4	1	-	5	1	2	1	1	3	2	3	1	1	2	1	3	1	2	1
5	2	3	1	3	4	3	3	3	3	1	2	2	2	1	3	3	3	1	1	4	2	-	1	1	2	1	1	2	1	3	1	2	2
6	2	1	2	1	2	5	4	4	2	2	-	-	4	1	4	3	3	5	1	3	2	-	5	1	3	1	2	1	1	2	2	-	2
7	2	4	1	3	1	4	4	4	3	1	1	1	3	1	3	3	4	1	1	2	2	-	5	2	1	3	1	3	1	3	1	3	1
8	2	3	2	2	2	2	4	3	3	2	-	-	4	1	4	1	-	5	1	3	1	1	3	1	2	1	2	1	2	4	2	-	2
9	2	2	2	1	2	5	2	2	2	2	-	-	4	1	3	3	2	5	1	4	2	-	5	2	3	1	2	1	1	2	1	1	1
10	2	3	1	3	2	3	1	3	4	1	1	3	5	1	3	3	3	-	1	3	1	1	3	1	2	3	2	2	1	3	1	2	1
11	2	3	2	2	4	1	4	4	4	1	1	1	4	1	4	3	3	5	1	1	1	1	5	2	1	1	2	2	1	2	1	2	2
12	2	2	2	1	2	4	4	3	3	1	1	2	4	1	4	1	-	5	1	2	1	1	3	1	3	2	2	1	2	3	2	-	2
13	2	4	1	2	1	2	4	4	3	1	1	1	2	1	3	3	4	-	1	2	1	1	1	2	1	2	2	3	1	3	1	3	1
14	2	2	1	1	2	3	1	2	4	1	2	1	2	1	3	3	3	1	1	2	1	1	2	2	2	2	1	1	2	1	2	1	1
15	2	1	1	1	2	2	2	3	3	2	-	-	6	1	4	3	2	2	1	1	2	-	5	1	1	1	1	2	2	4	1	2	2
16	2	1	2	2	2	5	4	2	2	1	1	3	4	1	4	3	3	5	1	3	1	1	5	1	3	1	2	1	1	2	1	1	1
17	2	3	2	2	4	1	3	3	2	2	-	-	3	1	4	3	3	1	1	4	-	-	3	1	2	1	2	2	1	3	1	2	2
18	2	2	1	3	2	4	2	3	3	2	-	-	2	1	3	3	4	5	2	-	1	2	3	2	2	2	2	2	1	1	1	2	1
19	2	3	2	1	2	1	2	4	4	2	-	-	4	1	4	1	-	1	1	2	1	1	5	2	1	1	2	3	1	1	1	3	1
20	2	2	1	1	2	5	2	3	3	2	-	-	6	1	3	2	1	2	1	1	2	-	1	1	1	2	2	1	2	4	1	1	2
21	2	2	2	2	1	2	4	1	2	1	1	2	4	1	4	3	3	-	1	2	2	-	3	1	1	1	2	1	1	1	1	1	1
22	2	3	2	1	2	5	4	4	4	1	-	-	3	1	4	2	1	2	1	3	2	-	3	2	1	1	1	2	1	3	1	2	1
23	2	4	1	1	2	3	4	4	4	1	1	2	4	1	4	1	-	5	1	2	1	1	5	2	2	1	1	3	1	2	1	3	1
24	2	3	2	2	4	2	3	3	2	1	2	3	4	1	3	3	3	-	1	4	2	-	4	1	2	2	1	1	1	1	1	1	1
25	2	3	2	1	2	4	4	3	3	2	-	-	4	1	4	3	2	1	1	2	-	-	3	1	3	1	1	2	1	3	1	2	2
26	2	1	2	3	1	5	2	4	2	2	-	-	3	1	3	3	3	-	1	3	1	1	4	1	2	2	2	1	1	2	1	1	1
27	2	2	2	1	2	2	4	2	2	1	1	1	4	1	4	3	4	5	1	4	2	-	5	2	3	1	2	2	2	3	1	2	1
28	2	3	2	3	2	3	4	4	4	1	1	3	4	1	4	1	-	1	1	2	-	-	1	1	1	1	1	3	1	2	1	3	1
29	2	4	2	3	2	2	4	4	4	1	1	3	4	1	4	1	-	1	1	2	-	-	1	1	1	1	1	3	1	2	1	3	1
30	2	3	1	3	2	5	4	3	3	2	-	-	4	1	4	3	2	1	1	2	-	-	2	1	1	1	2	2	1	1	1	1	1

PRE TEST AND POST TEST COMPARISON

Pre Sys	Pr Dia	Pr Tst Scr	3rd sys	3rd dia	6th sys	6th dia	9th sys	9th dia	12th sys	12th dia	15th sys	15th dia	Pst Tst Scr
140	90	1	150	80	150	80	140	80	145	85	145	80	3
160	100	2	155	90	150	90	140	80	140	90	140	90	3
160	100	2	140	80	140	70	130	70	130	70	130	70	3
150	90	1	160	80	150	80	150	70	150	70	150	70	3
160	100	2	150	80	150	80	140	80	140	90	140	80	4
140	80	1	140	80	135	80	130	70	140	80	140	85	2
140	90	1	160	100	150	90	150	90	150	90	150	80	3
150	100	2	150	90	140	90	150	80	130	70	130	80	4
140	80	1	150	90	150	90	150	95	140	90	145	90	3
150	90	2	140	80	140	70	130	70	135	75	135	75	3
140	70	1	130	90	130	70	120	80	130	70	120	80	3
140	80	1	140	80	140	70	130	70	130	70	130	70	3
140	90	1	160	90	155	90	150	80	155	80	155	90	5
150	100	2	160	90	160	80	150	80	150	90	150	90	2
140	80	1	160	80	160	80	140	90	140	80	140	80	2
160	100	2	140	90	130	90	130	80	130	90	130	80	2
160	90	2	150	80	140	80	140	70	140	70	140	70	3
140	90	1	140	80	130	80	130	70	135	80	135	70	3
150	90	1	150	90	150	90	140	90	145	95	145	95	5
160	100	2	140	80	130	80	135	90	140	90	130	80	3
140	80	1	150	90	150	90	160	90	150	90	150	90	2
150	80	1	140	80	140	90	140	90	130	80	130	70	3
140	70	1	150	80	140	80	140	70	130	80	130	80	3
140	80	1	140	80	140	80	130	70	140	80	140	80	3
160	100	2	140	80	140	80	130	70	130	70	130	70	5
160	90	2	140	70	135	75	135	75	135	75	135	75	3

Pre Sys	Pr Dia	Pr Tst Scr	3rd sys	3rd dia	6th sys	6th dia	9th sys	9th dia	12th sys	12th dia	15th sys	15th dia	Pst Tst Scr
150	100	2	140	80	140	70	130	70	130	70	130	70	2
140	90	1	140	70	130	70	130	70	130	70	130	70	2
140	90	1	140	70	130	70	130	80	130	80	130	70	5
150	90	1	160	80	155	80	155	80	150	80	150	70	2
											140	90	
150	90	1									150	90	-
140	90	1									140	90	-
140	80	1									140	90	-
150	100	2									150	90	-
150	90	1									150	80	-
140	90	1									150	80	-
160	90	2									150	90	-
140	80	1									150	90	-
150	100	2									150	90	-
150	80	1									160	100	-
160	100	2									140	90	-
140	80	1									160	90	-
150	90	1									150	80	-
150	90	1									140	80	-
160	100	2									150	90	-
150	90	1									140	80	-
140	90	1									150	90	-
140	80	1									160	100	-
150	90	1									150	90	-
160	100	2									150	90	-
140	90	1									150	90	-
150	90	1									140	90	-
140	90	1									150	90	-

Pre Sys	Pr Dia	Pr Tst Scr	3rd sys	3rd dia	6th sys	6th dia	9th sys	9th dia	12th sys	12th dia	15th sys	15th dia	Pst Tst Scr
140	90	1									140	70	-
150	90	1									150	90	-
160	90	2									140	80	-
150	80	1									140	80	-
160	90	2									140	80	-
150	90	1									140	90	-
140	90	1											-